

**FINAL**

**ENVIRONMENTAL ASSESSMENT**

**Reeds Creek Restoration**

**at**

**Beale Air Force Base, California**

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**9th Reconnaissance Wing**  
**Beale Air Force Base, California**

**August 2012**

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## FINDING OF NO SIGNIFICANT IMPACT

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### 1.0 NAME OF THE PROPOSED ACTION

Reeds Creek Restoration at Beale AFB, California.

The purpose of the Proposed Action is to reduce the flight hazard due to increased bird activity along Reeds Creek, by eliminating ponding created by beavers and natural deposits of sediment and debris. Beale AFB is home to an active runway and flight line. The 9th Reconnaissance Wing requires that base activities follow a Bird Aircraft Strike Hazard (BASH) Plan designed to minimize bird strikes, which create a severe threat to human life in addition to aircraft damage. Some key requirements found in the BASH plan include minimizing and reducing conditions that are attractive to birds around the flight line. Reeds Creek is located approximately 1.2 mi away from the active runway. Beavers have dammed portions of the creek creating several ponds, which are an attractant to birds.

### 2.0 DESCRIPTION OF PROPOSED ACTION AND NO ACTION ALTERNATIVE

**Proposed Action.** In order to reduce the safety risk, Beale AFB proposes to restore Reeds Creek to a natural meandering creek by inserting up to 9 pond levelers and cutting up to 4 breaches to act as spillways during precipitation events when water flow is too great for the levelers to convey.

**No Action Alternative.** Reeds Creek would not be restored, and water would continue to pond. This would pose a serious risk to pilot safety.

### 3.0 SUMMARY OF ENVIRONMENTAL EFFECTS

**Biological Resources.** Implementation of the Proposed Action would have no impact on biological resources. Environmental Protective Measures and Best Management Practices would be implemented to ensure potential nearby special status species (giant garter snake, Valley elderberry longhorn beetle, and California black rail) are not impacted.

**Water Resources.** The Proposed Action is expected to have minimal and temporary effects on water quality. Installation of spillways and spillway construction is expected to cause a temporary and minor increase in turbidity of Reeds Creek. Implementation of Best Management Practices would avoid erosion and sedimentation. The pond levelers (schedule 40 PVC pipe with wire cage) would themselves create up to 10 yd<sup>3</sup> of permanent fill within Reeds Creek with a surface area impact of up to 0.01 ac.

**Geological Resources.** Under the Proposed Action, excavation would result in direct effects on soil. Implementation of best management practices during construction would limit environmental consequences resulting from construction activities. Therefore, direct or indirect

effects on soils, regional or local topography, or physiographic features at the base would not be significant from implementation of the Proposed Action.

***Hazardous Materials and Wastes Management.*** Under the Proposed Action there would be no change in or effects on hazardous materials and wastes at Beale AFB. The construction site is not within the boundaries of an ERP site, the closest one being 2,800 ft away.

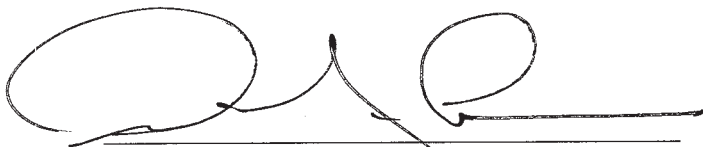
***Safety.*** The proposed dam spillways and levelers would enable 9 RW to meet future mission objectives at the base and conduct or meet mission requirements in a safe operating environment. Specifically, eliminating ponding along Reeds Creek would reduce flight risks caused by increased bird activity near the flight line. This would enable Beale AFB to improve flight safety and meet the goals laid forth in the BASH Plan.

#### 4.0 CONCLUSION

Based on the provisions set forth in the Proposed Action, all activities were found to comply with the criteria or standards of environmental quality and coordinated with the appropriate Federal, state, and local agencies. The attached Environmental Assessment (EA) and a draft of this Finding of No Significant Impact (FONSI) were made available to the public on July 23, 2012 for a 30-day review period. No comments were received.

#### 5.0 FINDINGS

***Finding of No Significant Impact.*** After review of the EA prepared in accordance with the requirements of the National Environmental Quality Act (NEPA), the Council on Environmental Quality (CEQ) regulations, and the Environmental Impact Analysis Process (EIAP), 32 CFR Part 989, as amended, I have determined that the Proposed Action would not have a significant impact on the quality of the human or natural environment. An Environmental Impact Statement (EIS) will not be prepared. This decision has been made after taking into account all submitted information, and considering a full range of practical alternatives that would meet project requirements and are within the legal authority of the USAF.



DOUGLAS J. LEE, Colonel, USAF  
Vice Commander, 9th Reconnaissance Wing

22 Oct 2012

Date

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## Acronyms and Abbreviations

9 CES/CEV	9th Civil Engineering Squadron/Environmental Flight
9 RW	9th Reconnaissance Wing
ACC	Air Combat Command
ACM	Asbestos-Containing Material
AFB	Air Force Base
AFI	Air Force Instruction
AOC	Area of Concern
APE	Area of Potential Effect
AQCR	Air Quality Control Region
ARPA	Archaeological Resources Protection Act
BAFB	Beale Air Force Base
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAIS	Chemical Agent Identification Sets
Cal-EPA	California Environmental Protection Agency
CARB	California Air Resources Board
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CNDDDB	California National Diversity Database
CO	Carbon Monoxide
CRWQCB	California Regional Water Quality Control Board
CSWRCB	California State Water Resources Control Board
ICRMP	Integrated Cultural Resources Management Plan
dB	Decibel
dBA	A-weighted decibel
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EQD	Explosive Quantity Distance
ERP	Environmental Restoration Program
ESS	Explosive Safety Submission
ft <sup>2</sup>	Square Feet
FIP	Federal Implementation Plan
FONPA	Finding of No Practicable Alternative
FRAQMD	Feather River Air Quality Management District
GGS	Giant Garter Snake
HCMP	Habitat Conservation and Management Plan
HQ	Headquarters
HPTP	Historic Properties Treatment Plan
INRMP	Integrated Natural Resources Management Plan
IROD	Interim Record of Decision
LBP	lead-based paint
L <sub>dn</sub>	day-to-night noise level
mg/m <sup>3</sup>	milligrams per cubic meter
MC	munitions constituents
MILCON	Military Construction
MMRP	Military Munitions Response Program
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLAA	Not Likely to Adversely Affect

NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxide(s)
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O <sub>3</sub>	ozone
O&M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
OWS	oil water separator
P.L.	Public Law
Pb	lead
PCE	tetrachloroethene
PM <sub>10</sub>	particulate matter less than or equal to 10 microns in diameter
PM <sub>2.5</sub>	particulate matter less than or equal to 2.5 microns in diameter
ppm	parts per million
PTO	Permit to Operate
PVC	Polyvinyl chloride
QOL	Quality of Life
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
ROG	Reactive Organic Gases
RWQCB	Regional Water Quality Control Board
SE	Wing Safety
SFS	Security Forces Squadron
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
TCP	Traditional Cultural Properties
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
UXO	unexploded ordnance
VELB	Valley Elderberry Longhorn Beetle
VOC	volatile organic compound
WWTP	Wastewater Treatment Plant
µg/L	micrograms per liter
µg/m <sup>3</sup>	micrograms per cubic meter

# Executive Summary

## Introduction

This Environmental Assessment (EA) describes the 9<sup>th</sup> Reconnaissance Wing's proposal to insert pond-levelers and create dam breaches to act as spillways in beaver dams along Reeds Creek at Beale Air Force Base (AFB), California.

## Purpose and Need for the Proposed Action

The purpose of the Proposed Action is to reduce the flight hazard due to increased bird activity along Reeds Creek, by eliminating ponding created by beavers and natural deposits of sediment and debris. Beale AFB is home to an active runway and flight line. The 9<sup>th</sup> Reconnaissance Wing requires that base activities follow a Bird Aircraft Strike Hazard (BASH) Plan designed to minimize bird strikes, which create a severe threat to human life in addition to aircraft damage. Some key requirements found in the BASH plan include minimizing and reducing conditions that are attractive to birds around the flight line.

Reeds Creek is located approximately 1.2 mi away from the active runway. Beavers have dammed portions of the creek creating several ponds, which are attractive bird habitat. In order to reduce this safety risk, Beale AFB proposes to restore Reeds Creek to a natural meandering creek by inserting up to 9 pond levelers and cutting up to 4 breaches to act as spillways during precipitation events when water flow is too great for the levelers to transmit.

## Description of the Proposed and Alternative Actions

**Proposed Action.** Under the proposed Action, Beale AFB proposes to cut a 25 ft x 3 ft x 2 ft breach in the main beaver dam to act as a spillway. The spillway will be directly adjacent to the existing pond leveler (installed in December 2011). It will allow a path for water that would otherwise pond after precipitation events. In addition Beale AFB proposes to install up to 9 additional levelers and create up to 3 additional spillways at other obstructions along Reeds Creek.

**Alternative Action.** Under the Alternative Action, Beale AFB proposes to remove the main dam in addition to installing up to 9 additional levelers and cutting up to 3 spillways elsewhere along the creek to maximize flow. Logistics of removing the main beaver dam would require the construction of two gravel roads, one coming off the all-weather roadway from the west (North Beale Road) and one from the all-weather roadway on the east side (Patrol Road). This would generate an estimated 4,500 yd<sup>3</sup> of soil as waste.

**No Action Alternative.** Under the No Action Alternative, Beale AFB would not restore Reeds Creek to a naturally meandering creek and water would continue to pond. Increased bird activity near the flight line as a result would remain, continuing to pose a serious safety risk to pilots at Beale AFB.

## Summary of Environmental Effects

**No Effects.** The following resources should not be affected by implementation of the Proposed or Alternative Actions: land use and aesthetics, agricultural resources, socioeconomics, public service,

population and housing, environmental justice, recreation, transportation, noise, cultural resources, utilities and infrastructure, and air quality.

**Biological Resources.** Implementation of the Proposed Action would have no impact on biological resources. Project-specific environmental protective measures (EPMs) and best management practices (BMP) would be implemented to ensure this (see section 4.1.1).

Implementation of the Alternative Action would directly impact 1.16 ac of branchiopod habitat and indirectly impact 0.51 ac. To compensate for this effect, 6.68 ac of branchiopod habitat would be preserved. The Alternative Action necessitates one elderberry shrub be transplanted. To compensate for this effect, 8 elderberry seedlings must be planted in a conservation area along with 2 more associated native plants. If the elderberry shrub is not successfully transplanted, 16 elderberry seedlings and 4 associated native plants must be planted in a conservation area as compensation. Project-specific environmental protective measures (EPMs) and best management practices (BMP) would be implemented to prevent, minimize, and/or compensate for impacts to biological resources (see section 4.1.2).

**Water Resources.** Implementation of the Proposed and Alternative Actions is expected to have only minimal and temporary direct and indirect adverse effects on water quality. With adherence of best management practices, adverse effects from erosion would be avoided. However, during the actual dam breach (Proposed), or removal (Alternative) when water is allowed to flow through the dam site low levels of sediment and debris could temporarily increase water turbidity of Reeds Creek. With adherence of best management practices, sedimentation would be avoided. Ground water and flood plains are not expected to incur any impact from implementation of either the Proposed or Alternative Actions.

**Geological and Mineral Resources.** Under the Proposed Action, excavation would result in direct effects on soil. Implementation of best management practices during construction would limit environmental consequences resulting from construction activities. Therefore, direct or indirect effects on soils, regional or local topography, or physiographic features at the base would not be significant from implementation of the Proposed Action.

Under the Alternative Action, construction activities, such as grading, excavation, and recontouring of the soil, would result in direct effects on soil. Implementation of best management practices during construction would limit environmental consequences resulting from construction activities. Therefore, direct or indirect effects on soils, regional or local topography, or physiographic features at the base would not be significant from implementation of the Alternative Action.

**Hazardous Materials and Waste.** Under both the Proposed and Alternative Actions there would be no change in or effects on hazardous materials and wastes at Beale AFB. The construction site is not within the boundaries of an ERP site, the closest one being 2,800 ft away.

**Safety.** Implementation of the Proposed or Alternative Actions would slightly increase the short-term risk associated with construction contractors performing work at Beale AFB during the normal workday because the level of such activity would increase. Contractors would be required to establish and maintain safety programs. Projects associated with the Proposed/Alternative Action would not pose a safety risk to base personnel or activities at the base.

Both the proposed dam spillways and levelers and the alternative dam removal would enable 9 RW to meet future mission objectives at the base and conduct or meet mission requirements in a safe operating environment. Specifically, eliminating ponding along Reeds Creek would reduce flight risks caused by increased bird activity near the flight line. This would enable Beale AFB to improve flight safety and meet the goals laid forth in the BASH Plan.

## **Cumulative Impacts**

Cumulative impacts on environmental resources result from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts would result from individually minor but collectively significant actions taking place over a period of time by various agencies (Federal, state, and local) or individuals.

No significant cumulative impacts on the environment would be anticipated from the Proposed Action or Alternative in conjunction with other activities.

## **1.0 PURPOSE AND NEED FOR PROPOSED ACTION**

This Environmental Assessment (EA) describes Beale Air Force Base's (AFB) proposal to reduce the amount of ponded water that has accumulated secondary to beaver dam construction and natural deposits of sediment and debris along the north edge of the base in the Reeds Creek area. This section presents the purpose of and need for the Proposed Action, the location and mission of Beale AFB, a summary of key environmental compliance requirements, and an introduction to the organization of this document and the EA.

### **1.1 Beale AFB Location and Mission**

Beale AFB is a United States Air Force (USAF) installation under the Air Combat Command (ACC). Beale AFB is headquarters to the 9th Reconnaissance Wing (RW). The 9 RW is responsible for providing national and theater command authorities with timely, reliable, high-quality, and high-altitude reconnaissance products. To accomplish this mission, the 9 RW is equipped with a fleet of U-2 and Global Hawk reconnaissance aircraft and associated support equipment. The 9 RW also maintains a fleet of the T-38 Talons, a twin-engine, high-altitude, supersonic jet trainer. In addition, the 9 RW is now home to a fleet of MC-12 aircraft, a medium- to low-altitude, twin-engine turboprop whose primary mission is providing intelligence, surveillance and reconnaissance, or ISR, support directly to ground forces. The 9 RW maintains a high state of readiness in its combat support and combat service support forces for potential deployment in response to theater contingencies. The 9 RW also provides support for Beale AFB, ranging from financial, personnel, housing, vegetation maintenance, legal, recreational, and medical needs to fire protection, Chaplain services, and installation security.

Beale AFB is a 22,944-acre military installation in Yuba County, California, approximately 40 miles north of Sacramento, 13 miles east of Marysville, and 25 miles west of Grass Valley (see **Figure 1-1**). The installation is between the Yuba and Bear rivers in an area that characterizes the transition from the western Sacramento Valley east to the Sierra Nevada foothills. **Figure 1-2** shows a close-up of the installation and the location of the area where the proposed restoration will occur.

### **1.2 Background**

Beale AFB is home to an active runway and flight line. The 9 RW requires the base follow a Bird Aircraft Strike Hazard (BASH) Plan designed to minimize bird strikes, which create a severe threat to human life in addition to aircraft damage. Some key requirements found in the BASH Plan include minimizing and reducing conditions that are attractive to birds around the flight line. Targeted areas include vegetation that could be potential food sources, as well as large areas of ponded water, which may increase bird populations near the flight line. Such conditions decrease the ability of Beale AFB to provide for safe flying of aircraft on Beale AFB.

### **1.3 Purpose and Need**

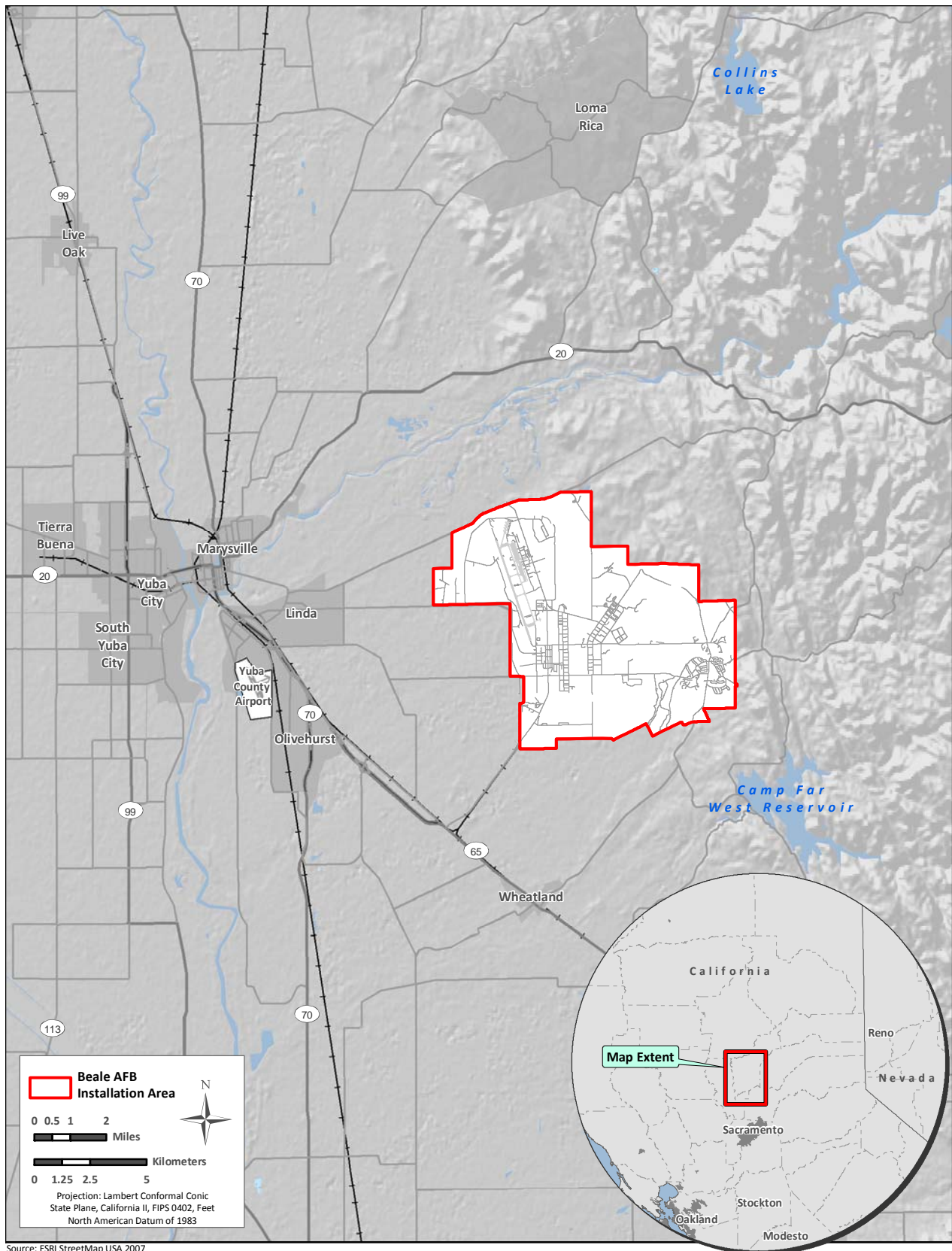
Reeds Creek is historically an intermittent stream that flows from east to west across the north end of Beale AFB, located approximately 1.2 miles from the active runway (see **Figure 1-2**). Based on historical photos, the creek has ranged from 6-40 feet in width and 1-8 feet in depth as far back as 1940. Over the years portions of the creek have been dammed by beavers resulting in ponding. While the creek historically dried to minimal widths and depths during the summer months of August to October, the presence of the beaver dams have prevented this, creating year-round ponding (see **Figure 1-4**).

The largest ponded area has been estimated at 20 surface acres in contrast to pre-dam estimates of 0-1 acres. This has created an attractant for many species of birds, particularly in the summer months when the surrounding landscape is dry, attracting birds that would otherwise have already vacated the area. This poses a BASH hazard. Despite the ongoing beaver control measures laid forth in the BASH plan, the size of the dam has grown to an unmanageable size (approximately 615 ft long, a variable width of 3-21 ft, and a variable height of 2-9 ft (Condor 2011)), a problem that continued control measures will not solve.

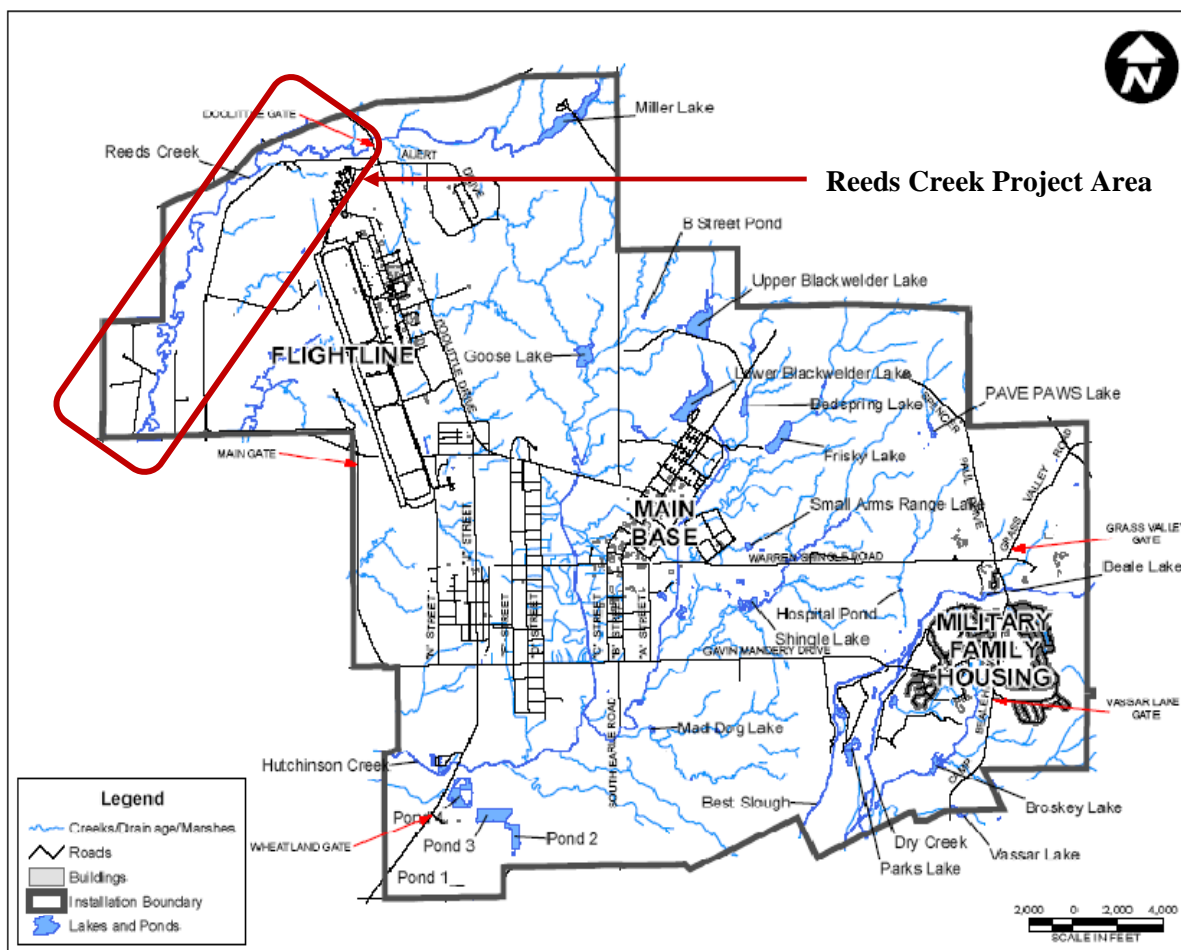
A Clemson-type pond leveler (Figure 1-5) was installed in December of 2011. Initial monitoring reports suggest the leveler has eliminated the 20-acre area of ponded water during the summer months, but not during the winter rainy season. Although the leveler has maintained creek flow, it is not enough to drain the pond during and directly after rainfall. Thus flight safety remains impacted during those months. The leveler continues to be monitored to determine overall success. A more permanent solution to this problem is required to reduce the amount of ponded water created by the beaver dam and restore the creek to a naturally flowing state.

Since the installation of the leveler, several other smaller beaver dams have been located along Reeds Creek. They are also obstructing the water flow and creating ponding, and likewise a flight hazard. These areas must also be addressed in order to maintain the natural meandering creek environment as well as maintain a safe flying environment for Beale aircraft.

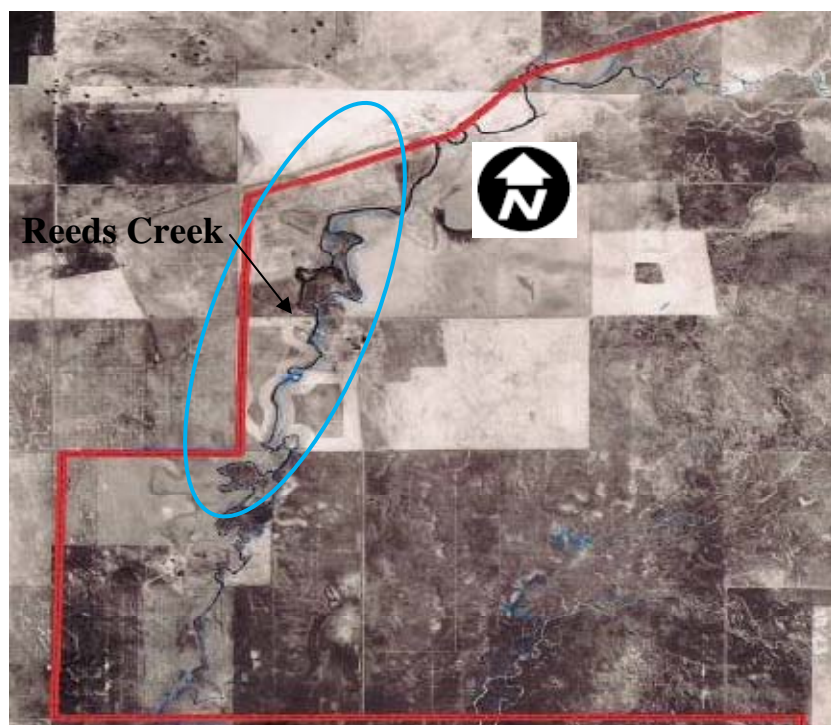
The Reeds Creek area provides suitable habitat for the Giant Garter Snake (GGS). The Giant Garter Snake and its habitat have protection under the Federal Endangered Species Act, and any modification of the species' habitat requires consultation with the United States Fish and Wildlife Service. All beaver dam modifications and reduction of ponded water must take into account not only the best way to reduce the water, but also how to maintain potential GGS habitat and minimize impacts during construction.



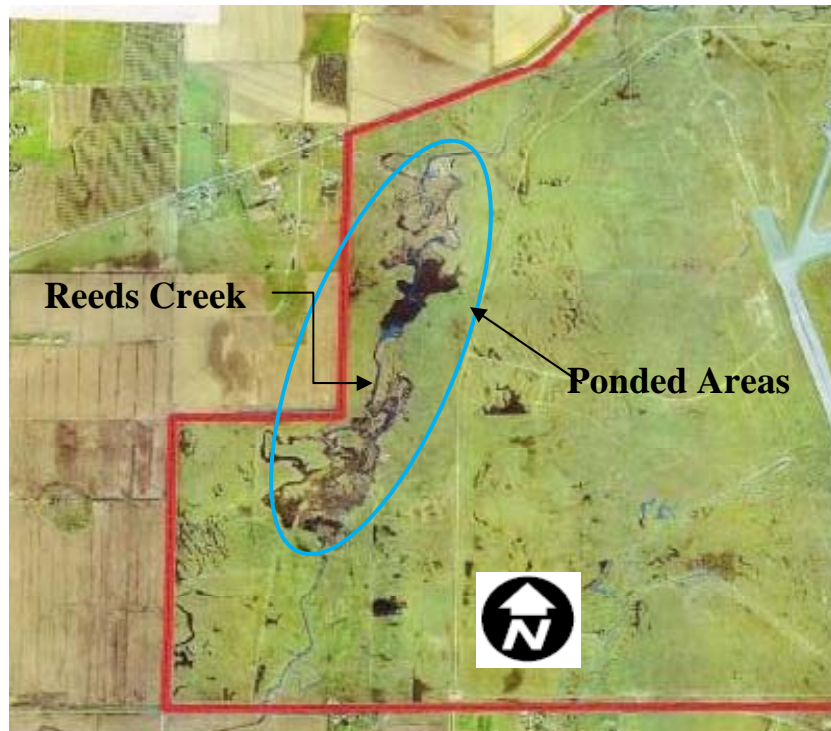
**Figure 1-1. Beale Air Force Base Location Map**



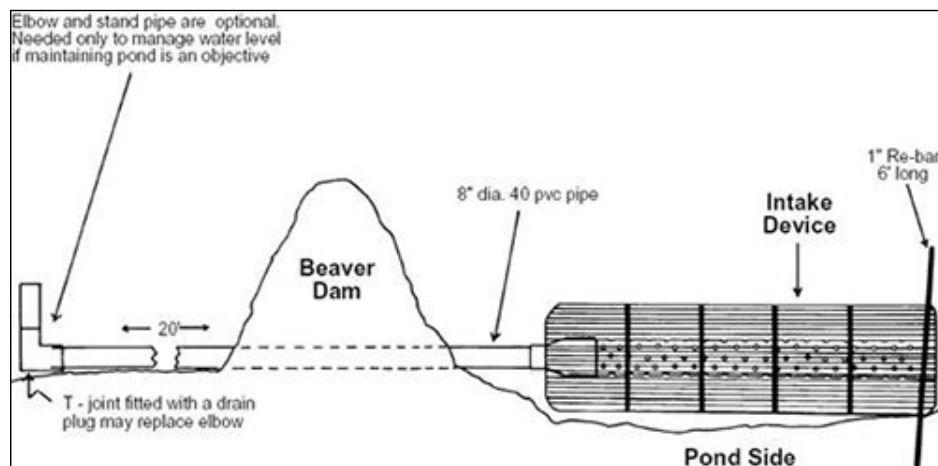
**Figure 1-2. Beale Air Force Base Map and location of Proposed Action**



**Figure 1-3. Aerial Photograph of Reeds Creek in 1940.  
Ponded areas are indicated in blue.**



**Figure 1-4. Aerial Photograph of Reeds Creek in 2008 including approximately 20 acres of ponded water**



**Figure 1-5. Drawing of a typical Clemson-type pond leveler.**

## **1.4 Summary of Key Environmental Compliance Requirements**

### **1.4.1 National Environmental Policy Act**

The National Environmental Policy Act (NEPA) of 1969 (42 United States Code [U.S.C.] Section 4321-4347) is a Federal statute requiring the identification and analysis of potential environmental impacts associated with proposed Federal actions before those actions are taken. The intent of NEPA is to help decision-makers make well-informed decisions based on an understanding of the potential environmental consequences and take actions to protect, restore, or enhance the environment. NEPA established the Council on Environmental Quality (CEQ) that was charged with the development of implementing regulations and ensuring Federal agency compliance with NEPA. The CEQ regulations mandate that all Federal agencies use a prescribed structured approach to environmental impact analysis. This approach also requires Federal agencies to use an interdisciplinary and systematic approach in their decision making process. This process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action.

The process for implementing NEPA is codified in Title 40 of the Code of Federal Regulations (CFR), Parts 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*. The CEQ was established under NEPA to implement and oversee Federal policy in this process. The CEQ regulations specify that an EA be prepared to briefly provide evidence and analysis for determining whether to prepare a Finding of No Significant Impact (FONSI) or whether the preparation of an Environmental Impact Statement (EIS) is necessary. The EA would aid in an agency's compliance with NEPA when an EIS is unnecessary and facilitate preparation of an EIS when one is required.

Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*, states that the USAF will comply with applicable Federal, state, and local environmental laws and regulations, including NEPA. The USAF's implementing regulation for NEPA is *Environmental Impact Analysis Process* (EIAP), 32 CFR Part 989, as amended.

### **1.4.2 Integration of Other Environmental Statutes and Regulations**

To comply with NEPA, the planning and decision-making process for actions proposed by Federal agencies involves a study of other relevant environmental statutes and regulations. The NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. It addresses them collectively in the form of an EA or EIS, which enables the decision-maker to have a comprehensive view of key environmental issues and requirements associated with the Proposed Action. According to CEQ regulations, the requirements of NEPA must be integrated “with other planning and environmental review procedures required by law or by agency so that all such procedures run concurrently rather than consecutively.”

The EA will examine potential impacts of the Proposed Action and alternatives on nine resource areas: air quality, geological resources, water resources, biological resources, cultural resources, traffic, safety, utilities and infrastructure, and hazardous materials and wastes. These resources could potentially be affected by the Proposed Action and include applicable elements of the human environment that are prompted for review by Executive Order (EO), regulation, or policy.

### **1.4.3 Interagency and Intergovernmental Coordination for Environmental Planning and Public Involvement**

NEPA requirements help ensure that environmental information is made available to the public during the decision-making process and prior to actions being taken. The premise of NEPA is the quality of Federal

decisions would be enhanced if proponents provide information to the public and involve the public in the planning process. The Intergovernmental Coordination Act and EO 12372, *Intergovernmental Review of Federal Programs*, require Federal agencies to cooperate with and consider state and local views in implementing a Federal proposal. AFI 32-7060, *Interagency and Intergovernmental Coordination for Environmental Planning* (IICEP), requires the USAF to implement the IICEP process, which is used for the purpose of agency coordination and implements scoping requirements.

Through the IICEP process, Beale AFB notified relevant Federal, state, and local agencies of the Proposed Action and alternatives and provided them sufficient time to make known their environmental concerns specific to the action. The IICEP process also provided Beale AFB the opportunity to cooperate with and consider state and local views in implementing the Federal proposal. In addition, the Draft EA and FONSI were mailed to relevant agencies for a 30-day IICEP review period. All IICEP material related to this EA is included in **Appendix B**. The agencies contacted during the IICEP process are listed in **Appendix B**.

A Notice of Availability (NOA) was published in the Marysville *Appeal-Democrat* and the Beale AFB electronic publication and made available to the public for a 30-day review period. The NOA was issued to solicit comments on the Proposed Action and involve the local community in the decision making process. No public comments on the Draft EA and FONSI were received during this review period. **Appendix B** includes a copy of the NOA as it appeared in the Marysville *Appeal-Democrat* and Beale AFB electronic publication.

## **2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**

This section describes the Proposed Action and alternatives. As discussed in **Section 1.4.1**, the NEPA process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action. Reasonable alternatives must satisfy the purpose of and need for a proposed action, as defined in **Section 1.1**. In addition, CEQ regulations also specify the inclusion of a No Action Alternative against which potential impacts would be compared. While the No Action Alternative would not satisfy the purpose of or need for the Proposed Action, it is analyzed in detail in accordance with CEQ regulations. Implementation of the Proposed Action, as described in **Section 2.1**, is Beale AFB's Preferred Alternative.

## 2.1 Detailed Description of the Proposed Action

The proposed action involves two strategies to reduce water ponding along Reeds Creek at Beale AFB.

- **Creation of Spillways (outside the historic stream channel)**
- **Installation of Additional Pond Levelers (within the historic stream channel)**

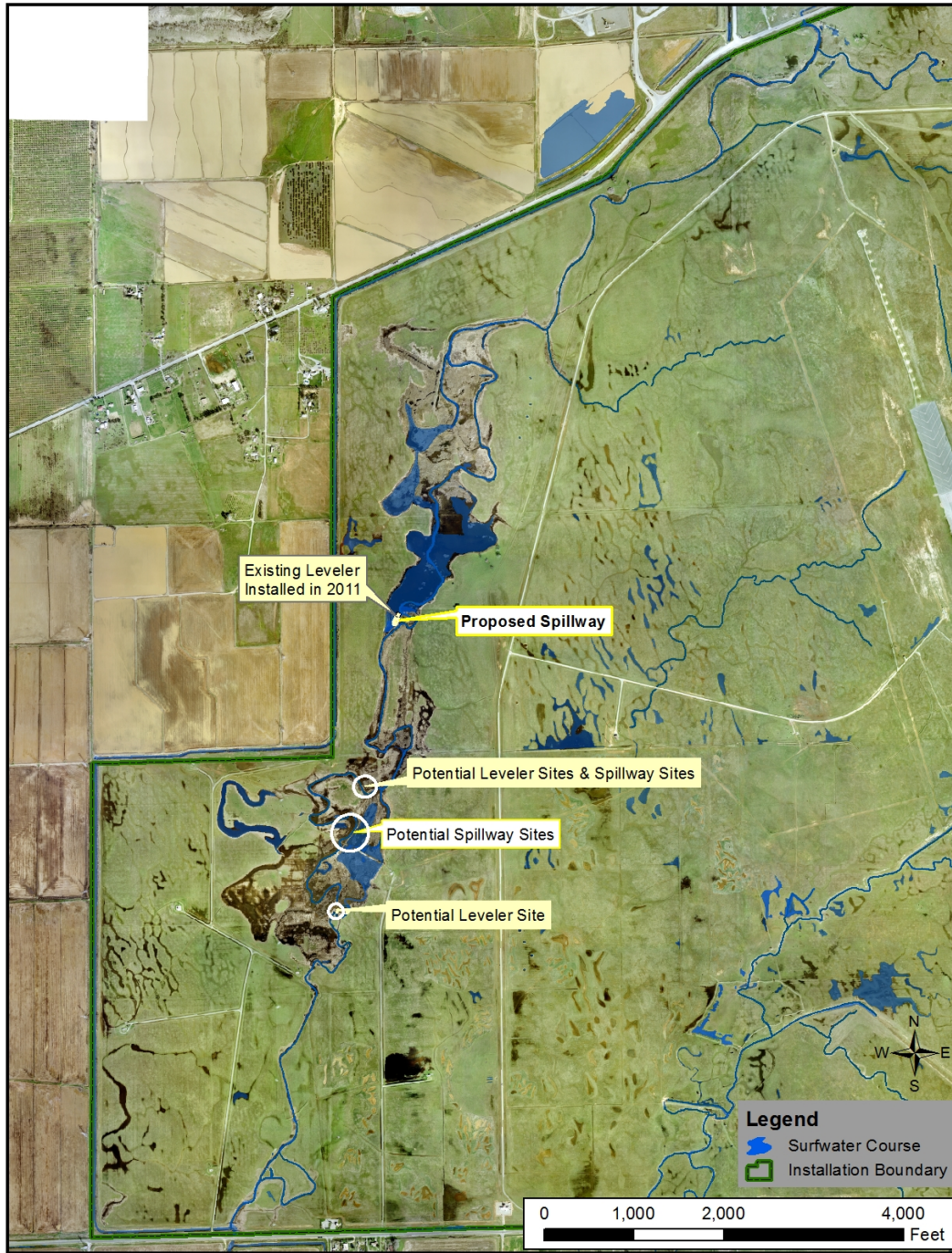
The levelers will help to maintain and control the water flow and the breaches will act as a spillways for times when water flow is too great for levelers to transmit (Fig. 2-1). Additionally, these levelers and spillways will be maintained in the future, as needed, to ensure that they continue to convey water.

### **Main Beaver Dam Area - Breach beaver dam to act as a spillway**

- Dewater ponded area using a siphon method and allow 2 weeks to pass until ground around area to be removed is completely dry.
- Cut an approximate 25'x3'x2' spillway directly adjacent to the existing pond leveler (see Appendix A for detailed description)
- Remove any high points in the creek bed directly upstream of the dam to give water a clear path through the leveler and spillway.
  - This will prevent repeat-pooling
- Designate an access route on the east side of the dam that avoids habitat areas
  - Routes for compact equipment in and out of the beaver dam area are planned to avoid direct impacts to adjacent elderberry and wetland/vernal pool areas.
  - Trench plates will be used to temporarily cross drainage ditches
- Breaching the dam would involve small equipment (rubber-wheeled or rubber-tracked compact excavator i.e. Bobcat brand and small ½ ton pick-up truck) to remove an estimated 4-10 cubic yards of soil (dependent upon volume of debris removed necessary to restore flow).
- The existing pond leveler in use at the dam site would remain as means of future control of water flow

### **Other Upstream/Downstream Spillways and levelers**

- Minor obstructions to water flow elsewhere along Reeds Creek would be located and eliminated to prevent fresh ponding once the main dam is breached.
  - This will be done using small equipment (Bobcat compact excavator and ½ ton pick-up truck)
  - Additional levelers (up to 9) may be installed at these sites as needed to maintain creek flow.
  - Up to 3 additional breaches (to function as spillways) would be created to assist in reestablishing the natural meandering creek environment.
- Ongoing maintenance of levelers and spillways to ensure they continue to convey water.



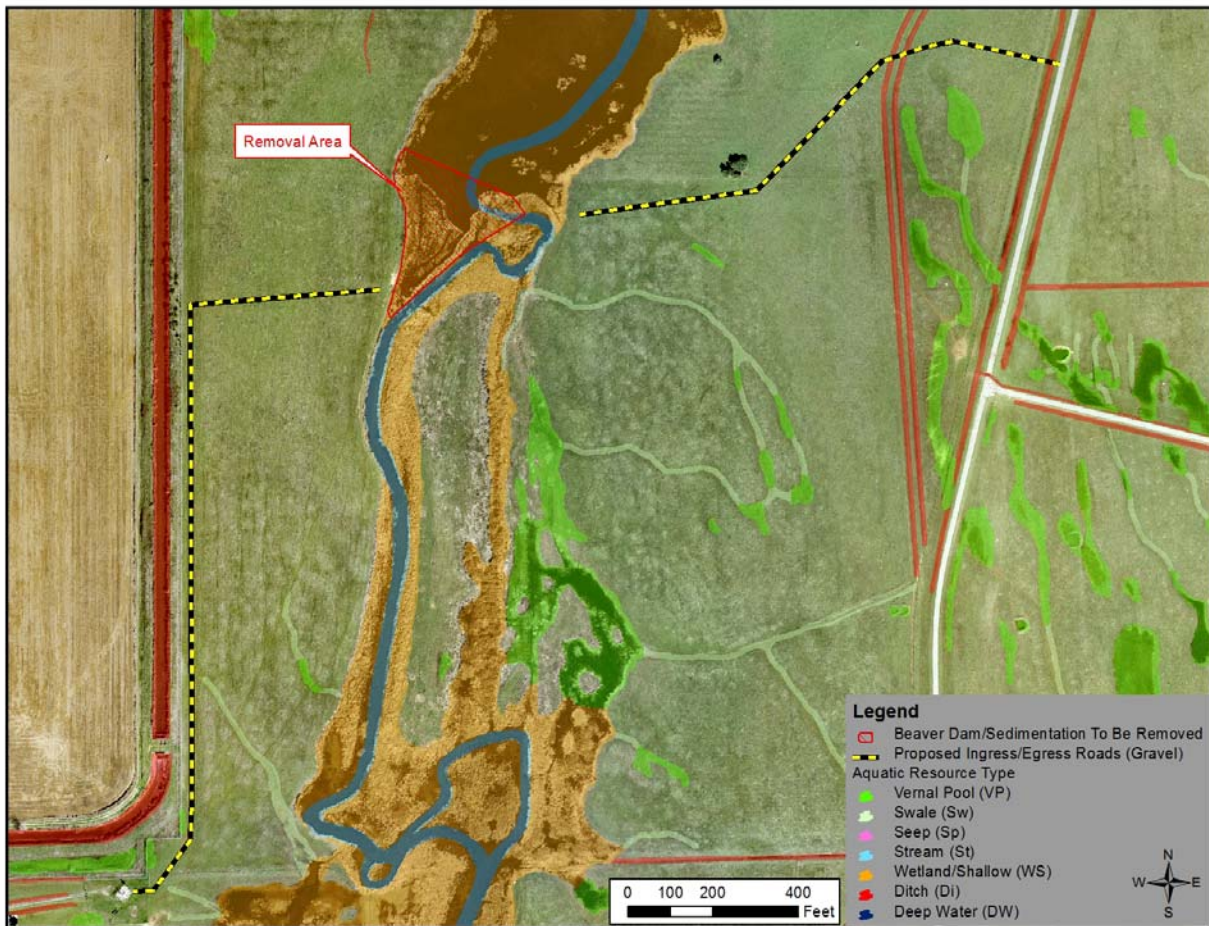
**Figure 2-1. Map of Reeds Creek indicating the potential work areas for the Proposed Action. A call-out highlights the location for the proposed spillway within the main beaver dam, directly adjacent to the pond-leveler installed in December 2011. Potential sites for additional spillways and levelers are circled downstream from the main dam.**

## 2.2 Alternatives

### 2.2.1 Alternative Action

Beale AFB alternatively proposes a dam removal (up to 100% of dam debris). The alternative action is similar to the proposed, in terms of necessary equipment and procedures, but differs in both magnitude of sediment removed and will require the construction of two gravel roads, one accessing the east side of the dam and one the west. The size of the dam necessitates access from both sides. This action would include the following procedures:

- Dewater ponded area using a siphon method and allow 2 weeks to pass until ground around area to be removed is completely dry.
- Preparation of gravel roads from the all-weather roadways to the main dam site (Figure 2-2)
  - Routes for large equipment in and out of the beaver dam area are planned to minimize impacts to adjacent elderberry and shrimp habitat.
- Remove the necessary volume of dam material (up to 100%) to restore creek flow and prevent water ponding.
- Re-contour the impounded area post dam removal to restore the water channel and eliminate low spots directly upstream of the dam site.
  - This will give water a clear, uninhibited path
- Construction would involve heavy equipment, including but not limited to grade setters, bulldozers, excavators, and water trucks), and as many as 450 standard dump truck loads to remove up to an estimated 4,500 cubic yards of soil
- The existing pond leveler in use at the dam site would be removed for dam excavation
- Minor obstructions to water flow elsewhere along Reeds Creek would be located and eliminated to prevent fresh ponding/flooding once the main dam is eliminated
  - This will be done using small equipment (rubber-wheeled compact excavator i.e. Bobcat brand and ½ ton pick-up truck) and will not require additional road construction.
  - Additional levelers (up to 9) may be installed at these sites as needed to maintain creek flow.
  - Up to 3 breaches (to function as spillways) would be created to assist in reestablishing the natural meandering creek environment.
- Ongoing maintenance of levelers and spillways to ensure they continue to convey water.



**Figure 2-2. Alternative Action showing gravel road construction required for dam removal. Additional downstream work (leveler installation and spillway creation) would remain the same as the proposed action (see Figure 2-1).**

### **2.2.2 No Action Alternative**

Under the No Action Alternative, the USAF would leave conditions at the Reeds Creek beaver dam as they are with no attempt to manage water flow and pond drainage or improve GGS habitat. The ponded area along Reeds Creek would continue to be a flight safety risk to aircraft at Beale AFB. Under the No Action Alternative, Beale AFB's flight safety would remain at current conditions.

### **2.2.3 Alternatives Considered but Eliminated from Detailed Analysis**

An alternative considered was demolition of the beaver dam using military-grade dynamite. An explosion of the magnitude required to demolish the entire dam would only be possible with multiple charges linked to blow at once. The bulk of the soil and debris comprising the dam would enter Reeds Creek, fouling the water. This has the likely potential to create water quality violations with the State of California. Due to the large amount of jurisdictional waters of the United States and vernal pools adjacent to the project area, as well as GGS habitat this alternative is not considered viable. Therefore, this alternative is eliminated from further detailed analysis in the EA.

## **3.0 AFFECTED ENVIRONMENT**

### **3.1 Resources Eliminated from Further Detailed Analysis**

Section 3 describes the environmental resources and conditions most likely to be affected by the Proposed Action and Alternatives. This section provides information to serve as a baseline from which to identify and evaluate environmental changes likely to result from implementation of the Proposed Action. Baseline conditions represent current conditions.

In compliance with the National Environmental Protection Act (NEPA), CEQ guidelines, and 32 CFR Part 989, as amended, the description of the affected environment focuses on those resources and conditions potentially subject to impacts including air quality, biological resources, water resources, cultural resources, hazardous materials and waste management, noise, safety and military munitions, soils, and transportation resources. Some environmental resources and conditions that are often analyzed in an EA were omitted from this analysis based on the following:

#### **3.1.1 Land Use and Aesthetics**

All activities associated with the Proposed Action would be consistent with present and foreseeable land use patterns at Beale AFB. In addition Beale AFB has a Facilities Board that evaluates and ensures visual compatibility of all proposed facility construction. This ensures the proposed action would not affect scenic visual components of Beale AFB. The action would not damage or degrade any existing character or quality of scenic natural or cultural resources. This action would not significantly alter the scenic natural resources because the area will still remain an overall creek environment. Implementation of the Proposed Action would not significantly alter the existing land use at Beale AFB due to the minor nature of the proposed project activities. Accordingly, this resource area was not analyzed in detail. All land use planning activities at Beale AFB are designed to be in accordance with the base General Plan (BAFB 2012a) that designates where allowable development shall occur. The General Plan ensures that the current base guidelines are followed with respect to maintaining separate areas of the base for flight line, administrative activities, and housing.

#### **3.1.2 Agricultural Resources**

Prime locations of agricultural land in California are determined by soil quality and irrigation status, which make particular locations attractive for agricultural operations. Feasibility of agricultural operations is generally based on climate and quality of the soils in the area together with the economic infrastructure that makes farming possible. The combination of soils, topography, and land use constraints at Beale AFB are generally not conducive to agricultural production. There is no prime or unique farmland or farmland of statewide importance at Beale AFB. Agricultural resources will not be adversely impacted by the Proposed Action. Accordingly, this resource area was not analyzed in detail.

#### **3.1.3 Socioeconomics, Public Service, Population and Housing**

The Proposed Action does not involve activities that would directly affect off-Base activities, nor should it directly or indirectly contribute to changes in socioeconomic resources. The project does not affect workload and therefore no changes are expected in the number of personnel assigned to Beale AFB and no changes in area population or associated changes in demand for housing and services. In addition, the

action would have no impact on governmental services and would not create a need for new governmental facilities. Accordingly, this resource area was not analyzed in detail.

#### **3.1.4 Environmental Justice**

Environmental justice concerns the disproportionate effect of a federal action on low-income or minority populations. The Proposed Action and its activities are situated within the boundaries of Beale AFB and as such, adverse impacts to low-income and minority populations are not expected. Accordingly, this resource area was not analyzed in detail.

#### **3.1.5 Recreation**

Recreation resources at Beale AFB include a recreation facility (the Harris Fitness center), walking trails, designated hunting and fishing areas, and other open spaces. The proposed action does not involve construction or expansion of recreational areas or facilities. The proposed action would not impact existing recreation facilities. Recreation at Beale AFB would not be impacted by the Proposed Action and therefore is not analyzed in detail.

#### **3.1.6 Transportation**

Implementation of the proposed action is not expected to affect transportation resources. No major roads would be constructed or modified due to the proposed action, no major influx of people would occur, and no effects to transportation networks are expected. Movement of construction equipment both inside and outside the project area would be of short duration and would have minimal effect to existing on and off base road systems. Because of the lack of expected impacts, transportation resources have been eliminated from further analysis.

#### **3.1.7 Noise**

Aircraft and surface traffic noise are the major sources of noise within the base boundaries as well as adjacent property off base. Short-term noise generated from construction activities at the proposed project would be isolated. Additionally, construction activities would occur only during daytime hours. Because construction noise would be temporary and there are few nearby noise-sensitive land uses, and all noise ordinances would be in compliance, effects are expected to be less than significant, and have been eliminated from further analysis.

#### **3.1.8 Cultural Resources**

A cultural resources survey has been conducted and no cultural resource sites are located within the boundaries of the proposed action (CRMP, BAFB 2012b). Additionally, no cultural sites eligible for listing in the National Register are known to occur within 500 feet of the proposed action. Therefore the effects to cultural resources are insignificant and have been eliminated from further analysis. A pre-military ineligible (no historical significance) cultural site is located less than 100' to the north.

#### **3.1.9 Utilities and Infrastructure**

The Proposed Action would not result in the use or modification of any infrastructure and utility resources. Impacts on infrastructure and utilities from the Proposed Action would be less than significant and have been eliminated from further analysis.

### **3.1.10 Air Quality**

The proposed action involves the use of small equipment and hand tools only, and will not require road construction or significant travel to and from the site. Air emissions generated by the proposed construction equipment (compact excavator and small pick-up truck) will be both minor and temporary in nature. There should be only minimal soil disturbance with little dust creation. Thus, air quality should not be significantly impacted.

## **3.2 Biological Resources**

Biological resources include native or naturalized plants and animals, along with the biotic communities, i.e., wetlands and grasslands, in which they exist. Sensitive and protected biological resources include species listed as threatened or endangered by the federal government or state agency. Wildlife, vegetation, and wetland resources provide aesthetic, recreational, and socioeconomic benefits to society.

This section describes the following aspects of the biological community within the affected environment:

- Annual grasslands
- Wetland resources
- Special-status species

### **3.2.1 Annual Grasslands**

Surrounding the Reeds Creek project site is the most common type of vegetation at Beale AFB, annual grassland. Annual grasslands cover approximately 18,835 acres of the installation (BAFB 2011a). It is an upland vegetation community dominated by nonnative annual grasses and a variety of native and nonnative forbs. Species of native perennial bunch grasses, including purple needle grass, California melic, giant squirrel tail, and two native annual grasses, Oldfield three-awn and Pacific fescue, are found in varying densities in pastures and roadsides throughout the base. Nonnative annual grass species include ripgut brome, Italian ryegrass, soft chess, medusahead, annual fescue, and foxtail barley. This community provides nesting and breeding habitat for a variety of grassland birds, as well as foraging habitat for many other bird species. Nonnative grasslands also provide foraging habitat and cover for several species of mammals and lizards common on the installation.

### **3.2.2 Wetlands**

Wetlands are areas that are transitional between aquatic habitats and upland habitats and in some cases are considered jurisdictional waters of the United States. The USACE and the USEPA jointly define wetlands as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions”. Wetlands are special aquatic sites that have a greater resource value than most jurisdictional waters, e.g. flood control, foraging for migratory species, and support for endangered species, and require a different level of avoidance and mitigation. Seasonal wetlands at Beale AFB include vernal pools, swales, and disturbed seasonal wetlands. The major differences in these types of wetlands are based on the length of time they pond or hold water as well as the species that occur at each of these wetlands. Vernal pools are the most common type of wetland on Beale AFB. All of these areas can provide habitat for the federally listed vernal pool fairy shrimp and vernal pool tadpole shrimp. These areas also provide important foraging, breeding habitat, and cover for wetland wildlife and invertebrates.

### **3.2.2.1 Vernal Pools**

Vernal pools are topographic depressions with impervious clay pan, hardpan, or bedrock bottoms that fill with water in the winter-spring rainy season and then dry completely by early summer. Surface water ponds in these depressions because they lack external drainage; water infiltration is slow to nonexistent due to underlying impervious soil layers. The length of time vernal pools are ponded varies from several days to the entire length of the wet season. These ephemeral wetlands also support highly specialized plant taxa adapted to growing conditions associated with seasonal and year-to-year variation in water availability. Vernal pools support endangered species on Beale AFB by providing habitat to the federally listed fairy shrimp and tadpole shrimp. The dominant plant species in high quality vernal pools at Beale AFB include coyote thistle (*Eryngium vaseyi*), Fremont goldfields (*Lasthenia fremontii*), white-flowered navarretia (*Navarretia leucocephala*), bractless hedge-hyssop (*Gratiola ebracteata*), vernal buttercup (*Ranunculus bonariensis*), annual hairgrass (*Deschampsia danthonioides*), field owl's clover (*Castilleja campestris*), Sacramento mesa mint (*Pogogyne ziziphoroides*), and dwarf woolly marbles (*Psilocarphus brevissimus*) (BAFB 2011a). Seasonal wetlands, including vernal pools, at Beale AFB provide important foraging and breeding habitat and cover for wetland wildlife and invertebrates. The high densities of terrestrial and aquatic invertebrates (e.g. ostracods, copepods, flatworms, and mosquito larvae) in wetland habitats provide an abundance of food for wildlife. Many wildlife species feed on the aquatic invertebrates found in seasonal wetlands.

Vernal pools do exist adjacent to Reeds Creek. While no vernal pools occur within 250 feet of the proposed construction site, vernal pools do exist within 250 feet of the alternative ingress/egress routes.

### **3.2.3 Federally Listed Species**

The Endangered Species Act (ESA) of 1973 established a federal program to conserve, protect, and restore threatened and endangered plants and animals and their habitats. The ESA specifically charged federal agencies with the responsibility of using their authority to conserve threatened and endangered species. All federal agencies must ensure any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a threatened and endangered species or result in the destruction of critical habitat for these species, unless the agency has been granted an exemption.

Beale AFB has conducted many studies over the last 10 years to assess the potential for sensitive biological resources as well as common species on Beale AFB property. There are 17 federally protected plant and animal species with potential to occur on Beale AFB. Of these 17 species the vernal pool fairy shrimp, vernal pool tadpole shrimp, and the valley elderberry longhorn beetle have been identified on Beale AFB. In addition, there are 3 additional species that have potential to occur on Beale AFB property. Of these three the Reeds Creek project area provides suitable habitat for the giant garter snake.

#### **3.2.3.1 Vegetation**

There are four plant species formally protected under Federal or state law that are found in Yuba County: Hartweg's golden sunburst (*Pseudobahia bahiifolia*), hairy Orcutt grass (*Orcuttia pilosa*), Hoover's spurge (*Chamaesyce hooveri*), and slender Orcutt grass (*Orcuttia tenuis*). None of these have been observed on Beale AFB. A fifth species, Greene's tuctoria (*Tuctoria greene*), is proposed for Federal listing but has not been observed on Beale AFB.

#### **3.2.3.2 Animals**

There are 13 animal species formally protected under Federal or state law that are found in Yuba County. Four of those species occur in the vicinity of the Proposed Action.

- The federally protected vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool tadpole shrimp (*Lepidurus packardii*) habitat occurs approximately 185 feet from the project site.
- The federally protected valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*) habitat occurs approximately 95 feet from the project site.
- The federally protected giant garter snake (*Thamnophis gigas*) habitat occurs within the Reeds Creek restoration project site.
- The federally protected bald eagle (*Haliaeetus leucocephalus*) is an irregular migrant to the area, and cannot be considered to be using the base for more than occasional foraging.
- The state-protected white-tailed kite (*Elanus leucurus*), present on the base year-round, cannot be considered to use the project site for more than occasional foraging.
- The state-protected golden eagle (*Aquila chrysaetos*), a year-round visitor to the base, cannot be considered to use the project site for more than occasional foraging.
- The state-protected American peregrine falcon (*Falco peregrinus anatum*), an irregular visitor to the base, cannot be considered to use the project site for more than occasional foraging.
- The state-protected black rail (*Laterallus jamaicensis*) has been observed at Beale AFB, but has not been observed on the project site.
- The state-protected Swainson's hawk (*Buteo swainsoni*) and greater sandhill crane (*Grus canadensis tabida*) have not been observed on the project site.
- The federally protected Central Valley steelhead (*Oncorhynchus mykiss*) and Chinook salmon (*Oncorhynchus tshawytscha*) are not known to occur within Reeds Creek.
- In addition, many bird species present on the project site (including those identified above) are subject to regulation under the Migratory Bird Treaty Act.

**Federally Threatened (T) or Endangered (E) Species Known to Occur on Beale AFB Properties:**

- vernal pool tadpole shrimp (*Lepidurus packardii*) (E)
- vernal pool fairy shrimp (*Branchinecta lynchi*) (T)
- valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*) (T)

**Federally Threatened or Endangered Species With the Potential to Occur on Beale AFB Properties:**

- California red-legged frog (CRLF) (*Rana draytonii*) (T)
- giant garter snake (GGS) (*Thamnophis gigas*) (T)
- Central Valley steelhead (*Oncorhynchus mykiss*) (T)

***Valley Longhorn Elderberry Beetle***

The valley elderberry longhorn beetle (VELB) was listed as a threatened species under the federal ESA on August 8, 1980. Elderberry beetles have only been found in association with their host plants, elderberry (*Sambucus mexicanus*) shrubs. Beetles remain hidden within the stems and trunks of elderberry

shrubs as larvae and pupae for 1 to 2 years. The beetles are incredibly elusive and often the only evidence of them is the exit holes in the elderberry stems the larvae leave behind after they have chewed their way out from the inner core. Elderberry shrubs are often found within or close to riparian habitats along Central Valley Rivers and their tributaries. Due to the widespread reduction of riparian habitat throughout the state, supporting habitat for this species has been drastically reduced from historical levels (Thelander and Crabtree 1994).

An elderberry shrub exists approximately 95 feet northeast of the proposed spillway site. It is a well-established shrub with approximately 20 stems of adequate size (greater than 1 in in diameter) to support VELB. At least 6 potential exit holes (2-5 mm in diameter) were noted upon a June 2011 site visit. The holes were evident in old-growth stems topped by beavers. Although no beetles were observed, we must assume their presence and protect the shrub accordingly.

### ***Giant Garter Snake***

The giant garter snake (GGS) has been listed as threatened under the ESA since 1993. It is one of the largest garter snakes and it can reach lengths in excess of 5 feet. Endemic to wetlands in the Sacramento and San Joaquin valleys, the giant garter snake inhabits marshes, sloughs, ponds, small lakes, low gradient streams, and other waterways and agricultural wetlands, such as irrigation and drainage canals and rice fields. Habitat requisites consist of: (1) adequate water during the snake's active season (early-spring through mid-fall) to provide food and cover; (2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; (3) grassy banks and openings in waterside vegetation for basking; and (4) higher elevation uplands for cover and refuge from flood waters during the snake's winter dormant season (Hansen 1980).

Reeds Creek provides suitable habitat for the giant garter snake, although GGS surveys conducted in 2008 (Hansen) and did not identify snakes within the vicinity. Earlier habitat evaluations of the base conducted in 2005, deem the upper portion of Reeds creek as "marginal habitat" and the lower portion, beginning just above the ponded area, as suitable habitat. The habitat features associated with suitable GGS habitat include: 1) sufficient water during the snake's active season (typically early spring through mid-fall) to supply cover and food such as small fish and amphibians; 2) emergent, herbaceous wetland vegetation, such as cattails (*Typha* spp.) and bulrushes (*Scirpus* spp.), accompanied by vegetated banks to provide basking and foraging habitat and escape cover during the active season; 3) upland habitat (e.g., bankside burrows, holes, and crevices) to provide short-term refuge areas during the active season; and 4) high ground or upland habitat above the annual high water mark to provide cover and refuge from flood waters during the dormant winter period. Recognized habitat requirements for GGS consists of 50 meters of upland, 50 meters of wetland, and 1-4 feet in creek depth. Despite no direct evidence of GGS presense, since the area provides adequate water, food and cover, all precautions and environmental protection measures shall be implemented during construction.

### ***Other Species***

Other Special Status Species include those that are State Listed, Species of Special Concern, and those that fall under the Eagle Protection Act and/or the Migratory Bird Treaty Act. Each of these areas will be discussed here.

### **3.2.4 California State Listed Species**

There are six species legally protected under the California Endangered Species Act that either utilize or have the potential to utilize Beale AFB.

- Swainson's hawk (*Buteo swainsoni*)
- American peregrine falcon (*Falco peregrinus anatum*)
- California black rail (*Laterallus jamaicensis coturniculus*)
- Greater sandhill crane (*Grus canadensis tabida*)
- Bank swallow (*Riparia riparia*)
- Bogg's Lake hedge-hyssop (*Gratiola heterosepala*)

The Swainson's hawk prefers to nest in riparian areas with isolated trees bordered by open foraging habitat (grasslands, agricultural lands, etc.) and was confirmed to be nesting on base in 2004. The base also provides suitable winter foraging habitat for the American peregrine falcon. The California black rail, thought to be a yearlong resident, has been observed in several freshwater marshes on Beale AFB during a 10-year study by the UC Sierra Foothills Research Station; however, this species has not been detected in the 2 Reeds Creek survey points during the study. The rail has habitat requirements (i.e. marsh with a 1 in water depth that does not fluctuate, and dense vegetation) not met by the project site. Therefore, we do not expect to impact the species. The greater sandhill crane is an irregular winter visitor on base; it uses annual and perennial grasslands, moist croplands, and open emergent wetlands for foraging. The bank swallow has not been reported on Beale AFB, but its preference of riparian habitat make its occurrence very likely. The Bogg's Lake hedge-hyssop has not been reported on Beale AFB.

Beale AFB is a federal installation and therefore not required to protect state listed species; however, surveys are preformed and management plans are in place to avoid impacting state listed species and their resources. Bird species present at the proposed project site are also subject to regulation under the Migratory Bird Treaty Act.

Potential impacts to these species would most likely be loss of habitat. Surveys will be conducted before a project in order to ensure species are not on site. If so, appropriate EPM's must be used.

#### ***Bald Eagle and Golden Eagle***

The Bald Eagle (*Haliaeetus leucocephalus*) is an irregular migrant to the area, and is considered to use the installation for occasional foraging. The Golden Eagle (*Aquila chrysaetos*) uses grasslands and savannas for foraging and is a year-round visitor. Several other special-status bird species occur on Beale AFB and have the potential to fly over or forage in the vicinity of the proposed project site.

The Bald and Golden Eagle Protection Act of 1940 provides protection of the Bald Eagle and the Golden Eagle by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds.

Potential impacts to these species would most likely be loss of habitat for foraging and nesting. Surveys will be conducted before a project in order to ensure species are not nesting on site. If so, appropriate EPM's must be used.

#### ***Migratory Bird Species***

The Migratory Bird Treaty Act (MBTA) of 1918, as amended provides protection of migratory birds. Unless otherwise permitted by regulations, the MBTA makes it unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver, or cause to be

shipped, exported, imported, transported, carried, or received any migratory bird, part, nest, egg, or product, manufactured or not. The MBTA covers all birds listed as special-status species along with all other migratory birds.

Potential impacts to these species would most likely be loss of habitat for foraging and nesting. Surveys will be conducted before the project commences in order to ensure species are not on site. If so, appropriate EPM's must be used.

### **3.3 Water Resources**

*Surface Water.* Surface water resources consist of lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale.

*Groundwater.* Groundwater typically can be described in terms of its depth from the surface, aquifer or well capacity, water quality, surrounding geologic composition, and recharge rate.

*Floodplains.* Floodplains are areas of low-level ground present along a river or stream channel. Federal, state, and local regulations often limit floodplain development to passive uses such as recreation and preservation activities to reduce the risks to human health and safety (BAFB 2011a).

#### **3.3.1 Jurisdictional Waters of the U.S.**

##### ***3.3.1.1 Surface Water***

There are several lakes and small impoundments on Beale AFB. Three major drainages (Dry, Hutchinson, and Reeds creeks) serve as the principal surface drainage system on Beale AFB. These creeks cross the installation generally in northeast-to-southwest direction (BAFB 2011a). Runoff in all three creeks ultimately flows south and west into either the Bear River or the Feather River. The proposed project is located within Reeds Creek.

Reeds Creek is primarily fed by drainage from Miller Lake, located approximately 2.5 miles east of the creek. The creek has a greater flow of water at the northern base boundary as a result of inflow from the Yuba County Water Agency. This inflow is controlled by a gate valve feeding Reed's Creek, and Yuba County Water Agency has agreed to provide Reeds Creek with a year round consistent flow of water.

##### ***3.3.1.2 Groundwater***

Groundwater at Beale AFB belonging to the Central Valley groundwater basin is found 300 to 500 feet below ground surface and is presumed to originate in unconfined aquifer materials with local clay/silt lenses overlying the Central Valley groundwater basin. Groundwater in the northern portion of Beale AFB receives recharge from the Yuba River drainage basin and generally has the highest quality at the installation. Groundwater in the central portion of the installation has higher levels of total dissolved solids and groundwater at the southern end of the installation receives recharge from Dry Creek and Bear River and has quality between that of the north and central regions. Groundwater at Beale AFB is generally first encountered within approximately 4 to 100 feet below ground surface at monitoring wells throughout the installation.

Groundwater has been impacted by former installation activities and is monitored and sampled under the ERP. Groundwater generally flows northeast to southwest across the installation. Water for domestic use at Beale AFB is provided from nine deep wells on the installation. Total water use at the installation

varies from 2.5 to 6.0 million gallons per day. The wells have a total combined pumping capacity of 5.0 million gallons per day (BAFB 2011a).

Groundwater at the project site can be found at an approximate depth of 50ft and will not be impacted by the project.

### ***3.3.1.3 Floodplains***

Creeks at Beale AFB are surrounded by wide floodplain areas created by the occasional heavy rainfall that occurs in the region, impervious soil conditions, and lack of topographic relief. There are two types of floodplains: (1) the 100-year floodplain has a 1 percent chance of flooding in any given year and (2) the 500-year floodplain has a 0.2 percent chance of flooding in any given year. This likelihood of occurrence is based on historic hydrology; future flood flows may be more or less frequent. The location of the 100-year and 500-year floodplain at Beale AFB is shown in Figure 3d. Various areas along major drainages at Beale AFB (Dry, Reeds, and Hutchinson creeks; and Best Slough) are within the 100-year floodplain. These floodplains flood periodically to varying degrees. Portions of the flight line, cantonment, military family housing, and riparian areas are within these floodplains (BAFB 2011a).

Reeds Creek is within the 100-year floodplain and the general creek area floods annually.

### ***3.3.1.4 Other Jurisdictional Waters of the United States***

Those areas that convey water, exhibit an “ordinary high water mark,” and do not meet the three parameter criteria for wetlands, might be non-wetland waters of the U.S. An ordinary high water mark is defined as the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, or the presence of litter and debris (33 CFR 328.3). This range of jurisdiction is typically regarded as the limit of the 2-year storm (a 50 percent probability that the line would be reached during the rainy season) (Foothill 2004).

The USACE recognizes three distinct types of drainage features: ephemeral drainages, intermittent drainages, and perennial drainages. Ephemeral drainages are fed primarily by storm water. They convey flows during and immediately after storm events; however, they may stop flowing or begin to dry if the interval between storms is sufficiently long. Intermittent drainages are fed primarily by groundwater and supplemented by storm water. After the onset of rains they should have persistent flows throughout and past the end of the rainy season. Eventually, depending on the availability of groundwater, these features become dry. Perennial drainages are fed predominantly by groundwater and supplemented by storm water. Flows in these systems persist throughout the year (Foothill 2004).

Most of the drainages and wetlands at Beale AFB are considered jurisdictional waters by the USACE. Wetlands, vernal pools, streams, drainages, and other aquatic resources, collectively referred to as Waters of the U.S (WoUS) are regulated under Section 404 of the federal Clean Water Act (CWA).

## **3.4 Geological and Mineral Resources**

Geological resources consist of the earth’s surface and subsurface materials. Within a given physiographic province, these resources typically are described in terms of geology and soils. Geology is the study of the earth’s composition and provides information on the structure and configuration of

surface and subsurface features. Such information derives from field analysis based on observations of the surface and borings to identify subsurface composition.

Beale AFB is on the boundary between the Great Valley and Sierra Nevada Geologic Provinces. The Great Valley Province was formed as a basin between the Coast Range Province on the west and the Sierra Nevada Province on the east. The basin has filled with alluvial deposits from the erosion of the Sierra Nevada and the Coast Range Provinces. Due to its location on the boundary of the two provinces, Beale AFB contains characteristics of both the Great Valley and the Sierra Nevada. Four geomorphic units of the Great Valley Province cover most of Beale AFB: river floodplains and channels of the Modesto Formation, low alluvial plains and fans of the Riverbank Formation, and the two dissected uplands of the Mehrten and Laguna Formations. A fifth geomorphic unit, metavolcanic rock, occurs in the eastern portion of the installation and is characteristic of the Sierra Nevada foothills (BAFB 2011a).

### **3.4.1 Soils**

Soils are the unconsolidated materials overlying bedrock and other parent material. Soil depth, structure, elasticity, strength, shrink-swell potential, and erodibility determine a soil's ability to support man-made structures and facilities. Soils typically are described in terms of their series or association, slope, physical characteristics, and relative compatibility or constraints with respect to particular construction activities and types of land use.

The Yuba County soil survey indicates the soil map unit found at the project site contains Perkins loam and San Joaquin loam. The San Joaquin loam series consists of moderately deep, moderately well drained soils that form on old alluvial terraces at elevations of 60 to 130 feet amsl. The infiltration rate for the San Joaquin loam is moderate and runoff is slow. The Perkins series consists of well-drained soils on terraces where the slope is 0 to 30 percent at an elevation of 50 to 1,700 feet. These soils formed from alluvium derived from igneous rock. The Perkins series is a well-drained soil with slow to rapid runoff and moderately slow permeability. (NRCS 2007)

The location of Beale AFB is central California and is over 50 miles from the closest known active fault where potential for seismic activity could occur. All projects designed at Beale AFB are required to meet current California seismic standards and shall evaluate specific soil conditions on a per project basis.

## **3.5 Hazardous Materials and Waste**

Hazardous substances are defined by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as any substance with physical properties of ignitability, corrosivity, reactivity, or toxicity that can cause an increase in mortality, a serious irreversible illness, or an incapacitating reversible illness; or pose a substantial threat to human health or the environment. CERCLA hazardous substances are found at Beale AFB in subsurface soil and groundwater due to past leaks or spills. The ERP is designed to identify, confirm, and clean up problems arising from past releases of hazardous substances and petroleum products into the environment.

Hazardous waste is defined by the Resource Conservation and Recovery Act (RCRA) as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that poses a substantial present or potential hazard to human health or the environment. Hazardous wastes are collected at Beale AFB at a central accumulation area, from which they are transported to a licensed off-site disposal area for disposal in accordance with RCRA.

The Toxic Substance Control Act (TSCA) addresses the production, importation, use, and disposal of specific chemicals including polychlorinated biphenyls (PCBs), asbestos, radon, and lead-based paint (LBP). Asbestos is found in the building materials at older buildings at Beale AFB. ACM in these buildings can include asphaltic roofing material and roofing felt, acoustic ceiling materials (e.g., acoustic tiles), textured paints and stucco, plaster color coats and skim coats, asbestos-cement wallboard, vinyl asbestos floor tile and adhesives, pipe insulation, and other building materials. LBP is defined by TSCA as paint or other surface coatings that contain lead in excess of 1.0 milligrams per centimeter squared or 0.5 percent by weight which could pose a hazard by exposure to lead if released from accessible painted surfaces due to deterioration, friction, or impact (15 U.S.C. 2601).

### **3.5.1 ERP**

The ERP at Beale AFB began in 1984 with an installation wide records search that identified 16 ERP sites for further investigation. Supplemental investigations beginning in the late 1980s and continuing to date brought the total number of Areas of Concern (AOCs) to 73 and ERP sites to 40. Primary contaminants in soil and water include fuels, oils, pesticides, herbicides, waste solvents, and inorganic compounds. Progress under the ERP is closely coordinated with various regulatory agencies, including the California Environmental Protection Agency Department of Toxic Substance Control and the CRWQCB (BAFB 2007).

The Beale AFB Environmental Office is responsible for the hazardous material and waste plans for Beale AFB. In conformance with the policies established by Air Force Policy Directive 32-70, the Base Environmental Office has developed plans to manage hazardous materials, hazardous wastes, and special hazards on the installation. Installation and contractor personnel collect hazardous wastes at initial accumulation points. From the initial accumulation points, wastes are taken to the Centralized Accumulation Site on the installation and shipped to off-installation disposal facilities. In accordance with the Beale AFB Hazardous Waste Management Program, hazardous wastes are stored on installation for a maximum of 75 days. The Beale AFB Environmental Office is also responsible for the investigation and restoration of MMRP sites.

A survey of buildings at Beale AFB was performed to locate, identify, and evaluate any materials containing asbestos. ACM is removed on an as-needed basis to minimize health risks from release of asbestos fibers during normal activities, maintenance, renovation, or Demolition/renovation.

The Reeds Creek area is not within the boundaries of an active ERP site that is either under investigation or remediation.

## **3.6 Safety**

A safe environment is one in which the potential for death, serious bodily injury or illness, or property damage is eliminated or reduced as much as possible. Human health and safety addresses workers' health and safety as well as public safety during burning, demolition/renovation, and construction activities, and subsequent operations of those facilities. AFI 91-202, USAF Mishap Prevention Program, implements AFD 91-2, Safety Programs. It establishes mishap prevention program requirements (including the Bird/Wildlife Aircraft Strike Hazard [BASH] Program), assigns responsibilities for program elements, and contains program management information. This instruction applies to all USAF personnel. AFI 91-301, Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program, implements AFD 91-3, Occupational Safety and Health, by outlining the AFOSH Program. The purpose

of the AFOSH Program is to minimize loss of USAF resources and to protect USAF personnel from occupational deaths, injuries, or illnesses by managing risks. In conjunction with the USAF Mishap Prevention Program, these standards ensure all USAF workplaces meet Federal safety and health requirements. This instruction applies to all USAF activities.

### **3.6.1 Military Munitions Response Program**

The Military Munitions Response Program (MMRP) was established in 2001 to manage environmental health and safety issues presented by unexploded ordinance (UXO), discarded military munitions (DMM) and munitions constituents (MC). The MMRP is an element of the Defense Environmental Restoration Program (DERP), under which the Secretary of Defense carries out environmental cleanup resulting from historical activities involving UXOs, DMM, and MC. Beale AFB has 44 range sites, which contain various munitions, UXO, and Chemical Agent Identification Sets (CAIS). Most of the munitions, UXO, and CAIS on the surface have been removed. However, munitions, UXO, and CAIS might still be found below the ground surface (BAFB 2005). Requirements for entering an MMRP are found in Chapters 5 and 12 of Ref. DOD Std. 6055.9, along with AFMAN 91-201. The base Wing Safety Office provides the explosive safety support to ensure all construction site safety requirements related to unearthing UXOs are met.

The proposed project site has not been identified as a high-risk site requiring further investigation or removal of potential UXOs.

### **3.6.2 Flight Safety/BASH Program**

The 9<sup>th</sup> Reconnaissance Wing Safety (9 RW/SE) office is the Office of Primary Responsibility (OPR) for the content and execution of the Beale Air Force Base Bird/Wildlife Aircraft Strike Hazard (BASH) Reduction Operational Plan (OPLAN) 91-212 in coordination with the 9<sup>th</sup> CES Natural Resources Manager. The OPLAN is established in accordance with AFI 91-202, USAF Mishap Prevention Program, to initiate base-wide program to minimize aircraft exposure to potentially hazardous bird strikes and danger from other wildlife. The 9 RW/SE monitors base-wide compliance and reports all aircraft bird strikes and hazards. Beale AFB currently has a contract with USDA Wildlife Services to assist with management of the Beale AFB BASH program. The Bird Hazard Working Group (BHWG) collects and reviews data on bird strikes, recommends changes to operation procedures and habitat, and initiates changes to the 9 RW Bird/Wildlife Aircraft Strike Hazard Plan (BAFB 2011b). The BHWG submits all major recommendations to the 9 RW Commander or Vice Commander for approval. Implementation of recommendations is through the normal chain of command (OPLAN 91-212).

### **3.6.3 Flight Safety**

Collisions between aircraft and wildlife are a concern throughout the world because they threaten passenger safety. Bird/Wildlife Air Strike Hazard (BASH) is a safety concern at Beale AFB because daily and heavy seasonal bird movements can create serious hazards to aircraft. Beale aircraft have struck 47 birds in the last 3 years. Bird hazards exist on the airfield year-round with peaks in the spring and the fall during migration. Numerous species of birds are present on the base, but most strikes with aircraft are by small perching birds, waterfowl, and raptors (birds of prey). Heavy migratory density makes the wet season (fall through spring) a particular concern for waterfowl strikes. The base contains many seasonal wetlands that act as an attractant for waterfowl, wading birds, and gulls during the wet season, while the surrounding agricultural areas act as food sources throughout the year.

The proposed project area is located 1.2 miles from the active runway on Beale AFB. The Reeds creek beaver dam area creates a flight safety risk for aircraft due to the large ponded area created by the beaver dam. This area attracts birds throughout the year and especially during the late summer months when other ponded areas in the region have dried up.

## **4.0 ENVIRONMENTAL CONSEQUENCES**

This section of the EA analyzes effects on the environment associated with the scope of the Proposed and Alternative Actions and the No Action Alternative as described in Section 2.0 and in consideration of the potentially affected environment as characterized in Section 3.0.

### **4.1 Biological Resources**

#### **4.1.1 Proposed Action – Spillways and Levelers**

During the design phase of the Proposed Action, extensive efforts were made by Beale AFB to avoid and minimize potential construction-related disturbances (direct or indirect) on sensitive habitats and associated special-status plant and wildlife species. Botanical and biological surveys of the project areas were conducted to determine the placement of project features in relation to natural features to avoid undue impacts on biological resources such as vernal pool, other seasonal wetlands, and associated threatened or endangered species. Additional avoidance measures would be used to minimize impacts on vernal pool or seasonal wetland areas.

##### **Annual Grasslands**

Implementation of the Proposed Action would result in a small loss of nonnative grassland habitat during construction. However, Beale AFB has an abundance of comparable grassland habitat in the surrounding area. Therefore, no significant impacts on grassland habitat would occur from implementation of the Proposed Action.

##### **Wetland Resources and Special-Status Species**

###### **Impact: Disturbance of Shrimp Habitat**

The proposed action will create no impacts to shrimp habitat in areas adjacent to Reeds Creek and/or ingress/egress routes. The nearest wetland or vernal pool is approximately 185 ft away from the dam.

###### **Impact: Disturbance of VELB Habitat**

The proposed action work area is approximately 95 ft from the nearest elderberry bush (habitat for the beetle), although light equipment (i.e. Bobcat and ½ ton pick-up truck) will come within 25 ft. No physical contact will be made with the elderberry shrub throughout the construction of the proposed project. All construction will be carried out during the dry season (typically June 1-December 1), which

is outside the active period when the beetles are likely to be outside the protective confines of the elderberry stems. No ground disturbing work will be carried out within 20 ft of the elderberry shrub; thus, the roots will not be impacted. Spillway construction should not create enough dust to harm the shrub because only light equipment will be used and will likely require only 1-2 total trips for disposal at teach spillway/leveler location. Although dewatering will take place 2 weeks prior to construction, this particular elderberry shrub is well-established and should have a sufficient root base to access ground water. Dewatering of the creek was carried out in December of 2011 for previous leveler installation at the main dam site and the shrub continues to thrive. Any long term dewatering along Reeds Creek due to elimination of ponding would occur during the wet winter season when the region is inundated. Consultation on VELB with US Fish and Wildlife Service (USFWS) was initiated on June 22, 2012.

### **Environmental Protection Measures:**

The following measures would be implemented to further ensure no harm comes to VELB and compensate for this effect.

***EPM 1: Exclusion Period.*** No work shall be conducted between November 1 and June 1, unless specifically approved by the Beale AFB environmental office who will field verify soil saturation, visual ponding and expected surface disturbance. No work shall be conducted during storm events or within 12 hours following a storm event, when water levels will be high. Work during the wet season is subject to being temporarily postponed until conditions permit construction equipment use without damaging the soil or vegetation cover.

***EPM 2: Upland Buffers.*** When Beale AFB conducts work near an elderberry shrub, as recommended by the USFWS 1999 protocol for this species, a 100-foot buffer will be maintained from all elderberry shrubs in the project area with 1 or more stems measuring more than 1 inch or greater in diameter at ground level (USFWS 1999b).

***EPM 3: Elderberry Plant Construction Boundaries.*** All areas to be avoided during construction will be fenced and flagged. In areas where encroachment on the 100-foot buffer cannot be avoided, a buffer of at least 20 feet from the drip line of each elderberry plant may be established with USFWS approval. Therefore, all the avoidance and minimization measures for the valley elderberry longhorn beetle will be implemented if a project occurs within 20-100 feet from the drip line of an elderberry shrub with appropriate notification to the USFWS. If encroachment within 20 feet from the drip line of an elderberry shrub is expected to occur, then compensation as described in the USFWS 1999 guidelines would apply.

***EPM 4: Notification Signs.*** Signs will be erected for 50 feet along the edge of the avoidance areas with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. The Endangered Species Act of 1973, as amended, protects this species. Violators are subject to prosecution, fines, and imprisonment". The signs should be clearly readable from a distance of 20 feet, and a must be maintained for the duration of construction.

***EPM 5: Dust Control.*** Dust control procedures, such as regular watering of disturbed soils and soil piles and covering of soil piles, will be used throughout the construction period. Soil disturbance activities will be delayed during high wind conditions.

***EPM 6: Restoration and Maintenance.*** Restoration and maintenance of disturbed areas within 100 feet of elderberry shrubs will be accomplished by implementation of the following measure: Any damage done to the buffer areas (area within 100 feet of elderberry plants) during construction will be restored.

**EPM 7: Erosion Control.** Erosion control, in accordance with the Beale AFB Storm Water Pollution Prevention Program (BAFB 2011c), will be provided and the areas will be re-vegetated where necessary with appropriate native plants.

**EPM 8: Biological Monitor.** A qualified biological monitor will be on-site for the duration of the transplanting of the elderberry plants to insure that no unauthorized take of the valley elderberry longhorn beetle occurs. If unauthorized take occurs, the monitor will have the authority to stop work until corrective measures have been completed. The monitor will immediately report any unauthorized take of the beetle or its habitat to the USFWS and to the CDFG.

**EPM 9: Notification of Injury/Death of SSS.** Any worker that inadvertently kills or injures a special-status species, or finds one injured or trapped, will immediately report the incident to the biological monitor. The USFWS Sacramento Endangered Species Office will be verbally notified of the incident within three days and will receive written notification within five days.

### **Impact: Disturbance of GGS Habitat**

All ground disturbing work will only occur within the beaver dam itself. The dam does not provide suitable hibernacula for the species since it floods over and is saturated with water during the winter and is therefore not considered “upland” habitat. However, creation of spillways and insertion of levelers will necessitate the use of light equipment directly adjacent to the dam in GGS suitable habitat. Although unlikely, a chance snake encounter could occur. Consultation on GGS with the USFWS was completed on November 21, 2011.

### **Environmental Protection Measures:**

The following measures would be implemented to compensate for this effect.

**EPM 1: Pre-construction Surveys.** Before construction commences, a qualified biologist will complete GGS ensuring no snakes are on the premises.

**EPM 2: Exclusion Period.** Construction activities will be conducted between June 1<sup>st</sup> and November 15<sup>th</sup>, when direct mortality will be lessened because the snakes can move to avoid danger.

**EPM 3: Disturbance Avoidance.** Disturbance to all hibernacula and aestivation areas (i.e., rocks, burrows, logs, brush piles, etc.) as well as dewatering will be avoided during cold or cool-weather periods when GGS would be inactive.

**EPM 4: Entrapment Prevention.** All construction-related holes will be covered to prevent entrapment of individual snakes.

**EPM 5: Biological Monitor.** A biological monitor will be on site while work is conducted to ensure compliance with all EPMs.

**EPM 6: Construction Boundaries.** Within the construction area, silt fencing can be used to keep snakes from entering the project site and being harmed.

**EPM 7: Notification of Injury/Death of SSS.** Any worker that inadvertently kills or injures a special-status species, or finds one injured or trapped, will immediately report the incident to the biological

monitor. The USFWS Sacramento Endangered Species Office will be verbally notified of the incident within three days and will receive written notification within five days.

***EPM 8: Equipment.*** A qualified biologist will check all construction equipment for snakes on a daily basis prior to starting work. The biologist will ensure no snakes are present under or around vehicles before they are moved. All construction vehicles and equipment will be serviced and refueled only in designated paved service areas.

***EPM 9: Environmental awareness Training.*** A qualified biologist will conduct environmental awareness training for all construction workers prior to any ground breaking work. The education program will include information on the snakes, their habitat needs, and the importance of avoiding impacts to this species.

***EPM 10: Work Area Designation.*** A qualified biologist will stake and flag the boundaries of all work areas. Project work will be limited to the beaver dam itself. Staking and flagging will be done before construction commences to ensure that construction vehicles, equipment, and personnel do not leave the designated work area. Off-road travel by construction vehicles and equipment will be prohibited outside of the designated ingress/egress routes, project and staging areas.

***EPM 11: Report GGS Sighting.*** Any sighting of a federally listed species will be immediately reported to the Biological Monitor, project work will cease, and the Sacramento Fish and Wildlife Office will be contacted immediately at (916)414-6600.

***EPM 12: Erosion Control Best Management Practices.*** In accordance with the Beale AFB Storm Water Pollution Prevention Plan, erosion control will be implemented as needed and may include: installation of silt fencing and straw wattles, the use of tackifiers, mulching, and limiting work to the dry season.

***EPM 13: Restoration.*** All disturbed areas will be recontoured to original site conditions. Disturbed areas will not be re-seeded, because this could attract birds and the project is in close proximity to the flight line.

***EPM 14: Dust Control.*** Dust control measures, including the use of a water truck, will be utilized as necessary.

#### **Positive Impact: Restoration of GGS Habitat**

Implementation of the Proposed Action would restore giant garter snake (GGS) habitat along Reeds Creek. Specifically where there is now a great shallow ponded area, grassy banks and openings in waterside vegetation necessary for basking would be restored. Higher elevation uplands for predator escape and refuge from floodwaters during the snake's winter dormant season would also be restored. (Hansen 1980)

#### **Impact: Disturbance of California Black Rail Habitat**

Implementation of the Proposed Action is unlikely to affect the California black rail. The ponded areas to be eliminated are greater than or equal to 1 ft in water depth. The rail requires shallow wetlands that provide a year-round water depth of 1 in. The rail prefers to hide in densely vegetated areas. The Proposed Action will not affect densely vegetated areas. Although it is unlikely the rail uses the project site for nesting and foraging, precautions will be taken to ensure no harm comes to the species.

#### **Environmental Protection Measures:**

The following measures would be implemented to compensate for this effect.

***EPM 1: Pre-construction Surveys.*** Before construction commences, a qualified biologist will complete California black rail surveys to ensure none are on the premises.

***EPM 2: Exclusion Period.*** Construction activities will be conducted between June 1<sup>st</sup> and November 15<sup>th</sup>, when the birds are unlikely to be nesting.

***EPM 3: Biological Monitor.*** A biological monitor will be on site while work is conducted to ensure compliance with all EPMs.

***EPM 4: Notification of Injury/Death of SSS.*** Any worker that inadvertently kills or injures a special-status species, or finds one injured or trapped, will immediately report the incident to the biological monitor. The USFWS Sacramento Endangered Species Office will be verbally notified of the incident within three days and will receive written notification within five days.

***EPM 5: Environmental awareness Training.*** A qualified biologist will conduct environmental awareness training for all construction workers prior to any groundbreaking work. The education program will include information on the rails, their habitat needs, and the importance of avoiding impacts to this species.

***EPM 6: Work Area Designation.*** A qualified biologist will stake and flag the boundaries of all work areas. Project work will be limited to the beaver dam itself. Staking and flagging will be done before construction commences to ensure that construction vehicles, equipment, and personnel do not leave the designated work area. Off-road travel by construction vehicles and equipment will be prohibited outside of the designated ingress/egress routes, project and staging areas.

***EPM 7: Restoration.*** All disturbed areas will be recontoured to original site conditions. Disturbed areas will not be re-seeded, because this could attract birds and the project is in close proximity to the flight line.

#### **4.1.2 Alternative Action – Beaver Dam Removal**

During the design phase of the Alternative Action, extensive efforts were made by Beale AFB to avoid and minimize potential construction-related disturbances (direct or indirect) on sensitive habitats and associated special-status plant and wildlife species. Botanical and biological surveys of the project areas were conducted to determine the placement of project features in relation to natural features to avoid undue impacts on biological resources. Because of road access and dam accessibility constraints, Beale AFB had little latitude regarding placement of the proposed ingress/egress routes, but features were sited to minimize impacts on sensitive natural resources such as vernal pool, other seasonal wetlands, and associated threatened or endangered species. Additional avoidance measures would be used to minimize impacts on vernal pool and special-status species.

#### **Annual Grasslands**

Implementation of the Alternative Action would result in a small loss of nonnative grassland habitat during construction. However, Beale AFB has an abundance of comparable grassland habitat in the surrounding area. Therefore, no adverse impacts on grassland habitat would occur.

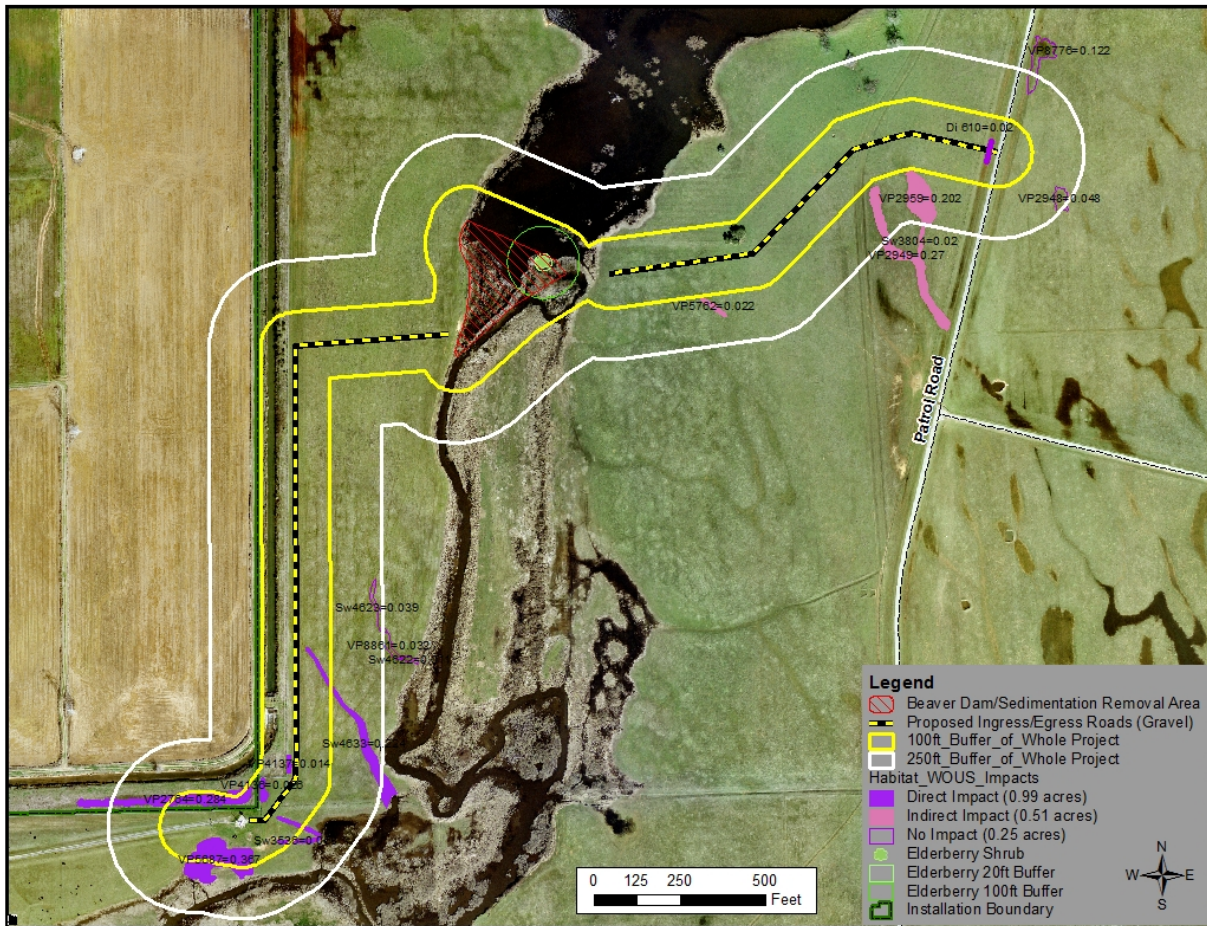
## Wetland Resources and Special-Status Species

### Impact: Disturbance of Shrimp Habitat

Construction activities involving hauling an estimated 2,250 to 4,500 cubic yards of soil and debris within 20 feet of wetlands and vernal pools will create 0.99 acres of direct impacts and 0.51 acres of indirect impacts (Table 4-1) to shrimp habitat in areas adjacent to Reeds Creek and/or ingress/egress routes (Figure 4-1). There are 2 swales connected to pool-swale complexes within 250 ft of the alternative action access roads but they do not exhibit the characteristics or inundation regimes necessary to support vernal pool species. There are also 2 vernal pools on the east side of Patrol Road that come within 250 ft of the eastern access road that are considered no impact due to the physical barrier (all-weather roadway) between the construction road and the pools. A section of the roadside ditch (0.02 ac) along Patrol Road is considered direct impact to branchiopod habitat. The ditch contains vegetation suggesting a suitable inundation regime to sustain the shrimp. The predominant plants include: coyote thistle (*Eryngium vaseyi*), Italian ryegrass (*Lolium perenne* ssp. *multiflorum*), and lesser hawkbit (*Leontodon taraxacoides* ssp. *longirostris*).

**Table 4-1. Summary of Alternative Action Direct and Indirect Impacts on Branchiopod Habitat and Compensation Requirements. Impacted acreage is listed separately for each road to allow for the event a western approach to the dam is unnecessary. Impacted pools can be seen on Figure 4-1 (shaded purple for directly impacted and pink for indirectly impacted).**

Impacts Associated with:	Impacted Acreage		Preservation Acreage (4:1)		Total Compensation Requirements
	Direct	Indirect	Direct	Indirect	
<b>Western Road</b>	0.97	0	3.88	0	3.88 ac Preserved
<b>Eastern Road</b>	0.02	0.51	0.08	2.04	2.12 ac Preserved
<b>Total Acres</b>	0.99	0.51	3.96	2.04	6.0 ac Preserved



**Figure 4-1: Reeds Creek Restoration Area with 100 ft and 250 ft buffers along the project site and access roads. Pools directly impacted are shaded in purple and those indirectly impacted in pink. Pools outlined in purple, although within 250 ft of the construction road, are not impacted.**

#### **Environmental Protection Measures:**

The following measures would be implemented to compensate for this effect.

**EPM 1: Exclusion Period.** No work shall be conducted between November 1<sup>st</sup> and June 1<sup>st</sup>, unless specifically approved by the Beale AFB environmental office who will field verify soil saturation, visual ponding and expected surface disturbance. No work shall be conducted during storm events or within 12 hours following a storm event, when water levels will be high. Work during the wet season is subject to being temporarily postponed until conditions permit construction equipment use without damaging the soil or vegetation cover.

**EPM 2: Wetland Construction Boundaries.** All work conducted within 25 feet of a wetland shall have construction boundaries designated with fencing to ensure no equipment will be in the vicinity of a drainage/wetland/vernal pool. All wetlands shall have erosion control measures (straw wattles) put in place when work is within 25 feet of a wetland.

**EPM 3: Biological Monitor.** If the work is within 25 feet of a wetland/drainage, a biological monitor will be on site while work is conducted within the 25 feet. The biological monitor will monitor all construction activities to ensure compliance with all EPMs.

**EPM 4: Environmental awareness Training.** A qualified biologist will conduct environmental awareness training for all construction workers prior to any ground breaking work. The education program will include information on vernal pool crustaceans, their habitat needs, and the importance of avoiding impacts to these species.

**EPM 5: Upland Buffers.** Upland vegetated buffers shall be established and maintained, to the maximum extent practicable, next to all preserved open waters, streams and wetlands including created, restored, enhanced or preserved waters of the U.S. Except in unusual circumstances, vegetated buffers shall be at least 50 feet in width.

**EPM 6: Notification of Injury/Death of SSS.** Any worker that inadvertently kills or injures a special-status species, or finds one injured or trapped, will immediately report the incident to the biological monitor. The USFWS Sacramento Endangered Species Office will be verbally notified of the incident within three days and will receive written notification within five days.

**EPM 7: Construction Barriers.** Orange barrier fences or pink flags will designate exclusion zones where construction activities cannot take place. A qualified biologist from Beale AFB Environmental office will install orange fence to keep equipment out of wetland areas. Staking and flagging will be done before construction commences to ensure that construction vehicles, equipment, and personnel do not leave the designated work areas. Off-road travel by construction vehicles and equipment will be prohibited outside of the designated ingress/egress routes, work and staging areas.

**EPM 8: Subsurface Protection.** If the project site is within 50 ft of a wetland the preconstruction clearing of vegetation will be done with hand equipment to ensure no subsurface disturbance below 6 in occurs in or near the wetland.

**EPM 9: Equipment.** Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance. All construction vehicles and equipment will be serviced and refueled only in designated paved service areas.

**EPM 10: Report SSS Sighting.** Any sighting of a federally listed species will be immediately reported to the Biological Monitor, project work will cease, and the Sacramento Fish and Wildlife Office will be contacted immediately at (916)414-6600.

**EPM 11: Erosion Control Best Management Practices.** In accordance with the Beale AFB Storm Water Pollution Prevention Plan, erosion control will be implemented as needed and may include: installation of silt fencing and straw wattles, the use of tackifiers, mulching, and limiting work to the dry season.

**EPM 12: Restoration.** All disturbed areas will be recontoured to original site conditions. Disturbed areas will not be re-seeded, because this could attract birds and the project is in close proximity to the flight line.

**EPM 13: Dust Control.** Dust control measures, including the use of a water truck, will be utilized as necessary. No water will be sprayed within 50 ft of any vernal pool crustacean habitat.

***EPM 14: Compensation for Direct Impacts on Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp.*** Ingress and egress routes to and from the Reeds Creek dam area could directly impact 1.16 acres of shrimp habitat due to the multiple routes of heavy equipment within 100ft of shrimp habitat. Shrimp habitat directly impacted (e.g. unnatural inundation, gravel or other sedimentary contamination, etc.) will require preservation.

***EPM 15: Compensation for Indirect Impacts on Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp.*** Ingress and egress routes to and from the Reeds Creek dam area will indirectly impact 0.51 acres of shrimp habitat due to the multiple routes of heavy equipment within 20ft of shrimp habitat. Areas within 250 ft of shrimp habitat will require preservation.

The project proponent shall avoid, minimize, or compensate for project-related impacts on federally listed species. According to the United States Fish and Wildlife Service (USFWS) Programmatic Biological Opinion, projects must compensate for adverse effects on the habitat of listed vernal pool invertebrates by preserving unaffected habitat and restoring adjacent habitat.

- For every acre of habitat directly affected by the Alternative Action, 4 acres of vernal pool shrimp habitat (vernal pools and depressional seasonal wetlands) would be preserved on Beale AFB or at another ecosystem preservation bank approved by the USFWS.
- For every acre of vernal pool shrimp habitat indirectly affected by the Alternative Action, 4 acres of similar shrimp habitat would be preserved on Beale AFB or at another ecosystem preservation bank approved by the USFWS.
- To compensate for impacts to vernal pool fairy shrimp and tadpole shrimp, 4.88 acres of similar habitat would be preserved at the approved compensation site on Beale AFB (Figure 4-1). Ongoing shrimp sampling at the proposed project site could reduce the compensation required if not all pools are supporting shrimp species.

#### **Impact: Disturbance of VELB Habitat**

The proposed action work area contains a single elderberry bush (habitat for the beetle). The shrub is growing on the dam itself and must be removed to allow for complete dam removal. This shrub has stems 5 in or greater in diameter, and exhibits multiple potential VELB exit holes.

#### **Environmental Protection Measures:**

The following measures would be implemented to compensate for this effect.

***EPM 1: Relocation Measures.*** The complete “Conservation Guidelines for the Valley Elderberry Longhorn Beetle” including the details for the transplanting procedure, and additional planting compensation can be found in the 1999 USFWS guidelines (USFWS 1999b). In summary, the following relocation measures will be implemented: All elderberry plants with one or more stems measuring 1.0 in or greater in diameter at ground level will be transplanted within a conservation area.

***EPM 2: Biological Monitor.*** A qualified biological monitor will be on-site for the duration of the transplanting of the elderberry plants to insure that no unauthorized take of the valley elderberry longhorn beetle occurs. If unauthorized take occurs, the monitor will have the authority to stop work until corrective measures have been completed. The monitor will immediately report any unauthorized take of the beetle or its habitat to the USFWS and to the CDFG.

***EPM 3: Notification of Injury/Death of SSS.*** Any worker that inadvertently kills or injures a special-status species, or finds one injured or trapped, will immediately report the incident to the biological monitor. The USFWS Sacramento Endangered Species Office will be verbally notified of the incident within three days and will receive written notification within five days.

***EPM 4: Transplanting.*** Elderberry shrubs will be transplanted when the plants are dormant, approximately November through the first two weeks in February, after they have lost their leaves. This will reduce shock to the plant and increase transplantation success.

***EPM 5: Compensation for Direct Impact of VELB Habitat.*** One elderberry shrub will be transplanted. To compensate for this effect, 8 elderberry seedlings must be planted in a conservation area along with 2 more associated native plants. If the elderberry shrub is not successfully transplanted, 16 elderberry seedlings and 4 associated native plants must be planted in a conservation area as compensation.

#### **Impact: Disturbance of GGS Habitat**

All ground disturbing work will only occur within the beaver dam itself. The dam does not provide suitable hibernacula for the species since it floods over and is saturated with water during the winter and is therefore not considered “upland” habitat. However, creation of spillways and insertion of levelers will necessitate the use of light equipment directly adjacent to the dam in GGS suitable habitat. Although unlikely, a chance snake encounter could occur.

#### **Environmental Protection Measures:**

The following measures would be implemented to compensate for this effect.

***EPM 1: Pre-construction Surveys.*** Before construction commences, a qualified biologist will complete GGS ensuring no snakes are on the premises.

***EPM 2: Exclusion Period.*** Construction activities will be conducted between June 1<sup>st</sup> and November 15<sup>th</sup>, when direct mortality will be lessened because the snakes can move to avoid danger.

***EPM 3: Disturbance Avoidance.*** Disturbance to all hibernacula and aestivation areas (i.e., rocks, burrows, logs, brush piles, etc.) as well as dewatering will be avoided during cold or cool-weather periods when GGS would be inactive.

***EPM 4: Entrapment Prevention.*** All construction-related holes will be covered to prevent entrapment of individual snakes.

***EPM 5: Biological Monitor.*** A biological monitor will be on site while work is conducted to ensure compliance with all EPMs.

***EPM 6: Construction Boundaries.*** Within the construction area, silt fencing can be used to keep snakes from entering the project site and being harmed.

***EPM 7: Notification of Injury/Death of SSS.*** Any worker that inadvertently kills or injures a special-status species, or finds one injured or trapped, will immediately report the incident to the biological monitor. The USFWS Sacramento Endangered Species Office will be verbally notified of the incident within three days and will receive written notification within five days.

***EPM 8: Equipment.*** A qualified biologist will check all construction equipment for snakes on a daily basis prior to starting work. The biologist will ensure no snakes are present under or around vehicles before they are moved. All construction vehicles and equipment will be serviced and refueled only in designated paved service areas.

***EPM 9: Environmental awareness Training.*** A qualified biologist will conduct environmental awareness training for all construction workers prior to any ground breaking work. The education program will include information on the snakes, their habitat needs, and the importance of avoiding impacts to this species.

***EPM 10: Work Area Designation.*** A qualified biologist will stake and flag the boundaries of all work areas. Project work will be limited to the beaver dam itself. Staking and flagging will be done before construction commences to ensure that construction vehicles, equipment, and personnel do not leave the designated work area. Off-road travel by construction vehicles and equipment will be prohibited outside of the designated ingress/egress routes, project and staging areas.

***EPM 11: Report GGS Sighting.*** Any sighting of a federally listed species will be immediately reported to the Biological Monitor, project work will cease, and the Sacramento Fish and Wildlife Office will be contacted immediately at (916)414-6600.

***EPM 12: Erosion Control Best Management Practices.*** In accordance with the Beale AFB Storm Water Pollution Prevention Plan, erosion control will be implemented as needed and may include: installation of silt fencing and straw wattles, the use of tackifiers, mulching, and limiting work to the dry season.

***EPM 13: Restoration.*** All disturbed areas will be recontoured to original site conditions. Disturbed areas will not be re-seeded, because this could attract birds and the project is in close proximity to the flight line.

***EPM 14: Dust Control.*** Dust control measures, including the use of a water truck, will be utilized as necessary.

#### **Positive Impact: Restoration of GGS Habitat**

Implementation of the Alternative Action would possibly restore a portion of giant garter snake (GGS) habitat along Reeds Creek. Specifically where there is now a great shallow ponded area, grassy banks and openings in waterside vegetation necessary for basking might be restored. Higher elevation uplands for predator escape and refuge from floodwaters during the snake's winter dormant season could also be restored. (Hansen 1980)

#### **Impact: Disturbance of California Black Rail Habitat**

Implementation of the Alternative Action is unlikely to affect the California black rail. The ponded areas to be eliminated are greater than or equal to 1 ft in water depth. The rail requires shallow wetlands that provide a year-round water depth of 1 in. Although it is unlikely the rail uses the project site for nesting and foraging, precautions will be taken to ensure no harm comes to the species.

#### **Environmental Protection Measures:**

The following measures would be implemented to compensate for this effect.

***EPM 1: Pre-construction Surveys.*** Before construction commences, a qualified biologist will complete California black rail surveys to ensure none are on the premises.

***EPM 2: Exclusion Period.*** Construction activities will be conducted between June 1<sup>st</sup> and November 15<sup>th</sup>, when the birds are unlikely to be nesting.

***EPM 3: Biological Monitor.*** A biological monitor will be on site while work is conducted to ensure compliance with all EPMs.

***EPM 4: Notification of Injury/Death of SSS.*** Any worker that inadvertently kills or injures a special-status species, or finds one injured or trapped, will immediately report the incident to the biological monitor. The USFWS Sacramento Endangered Species Office will be verbally notified of the incident within three days and will receive written notification within five days.

***EPM 5: Environmental awareness Training.*** A qualified biologist will conduct environmental awareness training for all construction workers prior to any groundbreaking work. The education program will include information on the rails, their habitat needs, and the importance of avoiding impacts to this species.

***EPM 6: Work Area Designation.*** A qualified biologist will stake and flag the boundaries of all work areas. Project work will be limited to the beaver dam itself. Staking and flagging will be done before construction commences to ensure that construction vehicles, equipment, and personnel do not leave the designated work area. Off-road travel by construction vehicles and equipment will be prohibited outside of the designated ingress/egress routes, project and staging areas.

***EPM 7: Restoration.*** All disturbed areas will be recontoured to original site conditions. Disturbed areas will not be re-seeded, because this could attract birds and the project is in close proximity to the flight line.

#### **4.1.3 No Action Alternative**

Under the No Action Alternative, there would be no change in or effects on biological resources at Beale AFB. In addition, GGS habitat would not be restored along Reeds Creek.

## **4.2 Water Resources**

Evaluation criteria for water resources impacts are based on water availability, quality, and use; existence of floodplains; and associated regulations. An impact on water resources would be significant if it were to reduce water availability to existing users or interfere with the supply, create or contribute to overdraft of groundwater basins, exceed safe annual yield of water supply sources, adversely affect water quality or endanger public health by creating or worsening adverse health hazard conditions, threaten or damage unique hydrologic characteristics, or violate established laws or regulations that have been adopted to protect or manage water resources of an area. The impact of flood hazards on a proposed action is significant if such an action is proposed in an area with a high probability of flooding.

#### **4.2.1 Proposed Action – Spillways and Levelers**

##### *Surface Waters*

##### **Impact: Reduction of Water Quality**

Implementation of the Proposed Action is expected to have minimal and temporary direct and indirect adverse effects on water quality. With adherence of best management practices, adverse effects from erosion would be avoided. However, during the actual dam breach when water is allowed to flow through the dam site low levels of sediment and debris could temporarily increase water turbidity of Reeds Creek. With adherence of best management practices, sedimentation would be avoided.

##### **Environmental Protection Measures:**

The following measures would be implemented to compensate for this effect.

***EPM 1: Best Management Practices.*** The contract would adhere to best management practices and applicable codes and ordinances to reduce storm water runoff-related impacts on a level of insignificance. The following best management practices would be followed by the contractor prior and during construction activities:

- Construction activities would only be allowed from May 1 to November 1.
- Erosion and sediment controls would be in place during construction to reduce and control siltation or erosion impacts on areas outside of the proposed construction sites.
- Any loose soil created by cutting spillways and installing levelers would be compacted.
- All vehicle operators would observe the posted speed limit on paved roads and a 20-mile per hour speed limit on unpaved roads.
- Off-road travel by vehicles or construction equipment would be prohibited outside of designated work areas.
- Motor vehicles and equipment would be fueled and serviced in designated service areas.

***EPM 2: Disposal of Excavated Soil.*** All soil excavated during construction of projects occurring in jurisdictional waters of the U.S. should be removed and disposed of by the contractor outside the project area. Coordination with 9 CES/CEV is required prior to disposing of this excavated soil.

***EPM 3: Gradual Release of Water Flow.*** Once the dam is removed, the diverted water flow will be gradually restored to avoid a strong flush of water that could erode exposed soil and cause sedimentation and/or increased turbidity. Previously installed leveler pipe could be used to achieve this.

##### *Ground Water*

None of the activities associated with the Proposed Action would affect groundwater quality.

## ***Flood Plains***

None of the activities associated with the Proposed Action would affect flood plains.

## ***Jurisdictional Waters of the U.S.***

### **Impact: Permanent Fill of a Wetland**

Installation of up to 9 additional pond levelers (schedule 40 PVC pipe with wire cage) into Reeds Creek would result in as much as 10 yd<sup>3</sup> of permanent fill and a surface area of impact of up to 0.01 ac. The fill is entirely from the levelers and is an unavoidable impact. Soil removed in the installation of the levelers will be directly replaced to hold the levelers in place, with no additional soil added. Section 401 and 404 (under Nationwide Permit 27) water permit applications were submitted to the USACE, Sacramento District and the CRWQCB, Central Valley Region. Copies of these submittal letters are provided in Appendix B. Approval of the Section 401 and 404 permit applications would be obtained prior to commencement of construction activities. A FONPA (Finding of No Practicable Alternative) was signed (2011) to justify this impact.

### **Environmental Protection Measures:**

The following measure would be implemented to compensate for this effect.

***EPM 1: Compensation for Permanent Fill in a Wetland.*** Although unanticipated due to the small volume of fill and small area of impact, any subsequent compensation required by the USACE and/or CRWQCB would be followed. This may include revegetation of adjacent riparian habitat.

## **4.2.2 Alternative Action – Beaver Dam Removal**

### ***Surface Waters***

#### **Impact: Pollution of Storm Water Runoff - Reduction of Water Quality**

Implementation of the Alternative Action is expected to have minimal and temporary direct and indirect adverse effects on water quality. Minor impacts to storm water are anticipated due to road construction within a floodplain area adjacent to Reeds Creek. Removal of the dam requires excavation within Reeds Creek itself and also has the potential to reduce water quality through loose soil polluting the water. Adherence of best management practices, would avoid adverse effects from erosion.

However, under the Alternative Action, greater than 1 acre of soil will be disturbed by clearing, grading, stockpiling, and excavation. This necessitates coverage be obtained under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit Order 2009-0009-DWQ) from the CRWQCB. Specifically, a National Pollutant Discharge Elimination System (NPDES) storm water construction permit is required. According to the terms of this permit, a Storm Water Pollution Prevention Plan (SWPPP) is also required. (CSWRCB 2012)

Projects on Beale AFB requiring NPDES permitting from the State of California have been determined to be at risk level 2. Risk level 2 projects are subject to water quality sampling and extensive inspection requirements. Reference the following for a complete list of Risk Level 2 Requirements [http://www.swrcb.ca.gov/water\\_issues/programs/stormwater/constpermits.shtml](http://www.swrcb.ca.gov/water_issues/programs/stormwater/constpermits.shtml).

## **Environmental Protection Measures:**

The following measures would be implemented to compensate for this effect.

***EPM 1: Best Management Practices.*** The contract would adhere to best management practices and applicable codes and ordinances to reduce storm water runoff-related impacts on a level of insignificance. The following best management practices would be followed by the contractor prior and during construction activities:

- Construction activities would only be allowed from May 1 to November 1.
- Erosion and sediment controls would be in place during and after construction to reduce and control siltation or erosion impacts on areas outside of the proposed construction sites.
- All vehicle operators would observe the posted speed limit on paved roads and a 20-mile per hour speed limit on unpaved roads.
- Off-road travel by vehicles or construction equipment would be prohibited outside of designated work areas.
- Motor vehicles and equipment would be fueled and serviced in designated service areas.

***EPM 2: Disposal of Excavated Soil.*** All soil excavated during construction of projects occurring in jurisdictional waters of the U.S. should be removed and disposed of by the contractor outside the project area. Coordination with 9 CES/CEV is required prior to disposing of this excavated soil.

***EPM 3: Gradual Release of Water Flow.*** Once the dam is partially removed, the diverted water flow will be gradually restored to avoid a strong flush of water that could erode exposed soil and cause sedimentation and/or increased turbidity. Previously installed leveler pipe could be used to achieve this.

***EPM 4: National Pollutant Discharge Elimination System (NPDES) storm water construction permit.*** Removal of the dam would require an NPDES permit. This permit further entails:

- A Storm Water Pollution Prevention Plan (SWPPP) and Risk Assessment must be prepared by a Qualified SWPPP Developer, according to the terms of the NPDES permit.
- The project engineer/contractor shall implement the SWPPP as well as monitor its effectiveness throughout construction activities.
- All personnel involved with the project (including subcontractors) must receive storm water training.
- All BMPs must be implemented by a Qualified SWPPP Practitioner according to the terms of the NPDES permit.
- The contractor shall perform weekly BMP inspections and additional inspections prior to, during and after any rain events.
- The BMP inspector should complete an inspection checklist to be used to identify and record BMPs in need of maintenance, that have failed, or that could fail to operate as intended.

- Upon any identification of failures or shortcomings, the contractor must implement repairs and/or design changes to BMPs within 72 hours.
- Monthly copies of inspection checklists/reports should be sent to the project engineer, and copies must remain on-site together with the project SWPPP.
- Water sampling and analysis should be performed by a certified sampler and must be done during and after construction.

### ***Ground Water***

None of the activities associated with the Alternative Action would affect groundwater quality.

### ***Flood Plains***

#### **Impact: Obstruction to runoff flow**

Road construction perpendicular to the natural runoff flow in the flood plain adjacent to Reeds Creek has the potential to change the flood regime and hydrological functioning of nearby vernal pool complexes. Additionally, such a barrier could create flooding, which may compromise the structural integrity of the roads themselves. To implement the alternative action, a FONPA would be required to justify this impact and document no practicable alternative exists.

#### **Environmental Protection Measures:**

The following measure would be implemented to compensate for this effect.

***EPM 1: Hydrological Analysis.*** Prior to commencement of construction activities a qualified hydrologist should study the flood plain adjacent to Reeds Creek to determine the least impacting road plan. Road planning should take into consideration any recommendations by the hydrologist to minimize or eliminate impacts to the surrounding flood plain.

### ***Jurisdictional Waters of the U.S.***

#### **Impact: Permanent Fill of a Wetland**

Installation of up to 9 additional pond levelers (schedule 40 PVC pipe with wire cage) into Reeds Creek would result in as much as 10 yd<sup>3</sup> of permanent fill and a surface area of impact of up to 0.01 ac. The fill is entirely from the levelers and is an unavoidable impact. Soil removed in the installation of the levelers will be directly replaced to hold the levelers in place, with no additional soil added. Section 401 and 404 (under Nationwide Permit 27) water permit applications were submitted to the USACE, Sacramento District and the CRWQCB, Central Valley Region. Copies of these submittal letters are provided in Appendix B. Approval of the Section 401 and 404 permit applications would be obtained prior to commencement of construction activities. A FONPA (Finding of No Practicable Alternative) was signed (2011) to justify this impact up to an impact area of 0.0062.

Dam removal (an estimated 2,250 to 4,500 cubic yards of soil and debris) would likely require permanent stabilization of the creek bed to ensure water quality and ward against erosion. Such stabilization would necessitate the use of material such as riprap. This would increase the level of fill within Reeds Creek

and require a new FONPA be drafted and signed. Additionally new Section 401 and 404 water permits should be filed to reflect this increase.

**Environmental Protection Measures:**

The following measure would be implemented to compensate for this effect.

***EPM 1: Compensation for Permanent Fill in a Wetland.*** Any subsequent compensation required by the USACE and/or CRWQCB would be followed. This may include revegetation of riparian habitat.

**4.2.3 No Action Alternative**

Under the No Action Alternative, there would be no change in or effects on water resources at Beale AFB.

**4.3 Geological and Mineral Resources**

**4.3.1 Proposed Action – Spillways and Levelers**

Under the Proposed Action, excavation would result in direct effects on soil. Implementation of best management practices during construction would limit environmental consequences resulting from construction activities. Therefore, direct or indirect effects on soils, regional or local topography, or physiographic features at the base would not be significant from implementation of the Proposed Action.

**Environmental Protection Measures:**

Fugitive dust from construction activities should be minimized by watering and soil stockpiling, thereby reducing to negligible levels the total amount of soil exposed. Standard erosion control means (silt fencing, sediment traps, application of water sprays, and revegetation at disturbed areas) would also reduce environmental consequences related to those characteristics.

**4.3.2 Alternative Action – Beaver Dam Removal**

Under the Alternative Action, construction activities, such as grading, excavation, and recontouring of the soil, would result in direct effects on soil. Implementation of best management practices during construction would limit environmental consequences resulting from construction activities. Therefore, direct or indirect effects on soils, regional or local topography, or physiographic features at the base would not be significant from implementation of the Alternative Action.

**Environmental Protection Measures:**

Fugitive dust from construction activities should be minimized by watering and soil stockpiling, thereby reducing to negligible levels the total amount of soil exposed. Standard erosion control means (silt

fencing, sediment traps, application of water sprays, and revegetation at disturbed areas) would also reduce environmental consequences related to those characteristics.

#### **4.3.3 No Action Alternative**

Under the No Action Alternative, there would be no change in or effects on geological resources at Beale AFB.

### **4.4 Hazardous and Material Waste**

#### **4.4.1 Proposed Action – Spillways and Levelers**

Under the Proposed Action there would be no change in or effects on hazardous materials and wastes at Beale AFB. The construction site is not within the boundaries of an ERP, the closest one being 2,800 ft away.

#### **4.4.2 Alternative Action – Beaver Dam Removal**

Under the Alternative Action there would be no change in or effects on hazardous materials and wastes at Beale AFB. The construction site is not within the boundaries of an ERP, the closest one being 2,800 ft away.

#### **4.4.3 No Action Alternative**

Under the No Action Alternative, there would be no change in or effects on hazardous materials and wastes at Beale AFB.

### **4.5 Safety**

#### **4.5.1 Proposed Action – Spillways and Levelers**

Short-term, minor direct adverse effects would be expected from the Proposed Action. Implementation of the Proposed Action would slightly increase the short-term risk associated with construction contractors performing work at Beale AFB during the normal workday because the level of such activity would increase. Contractors would be required to establish and maintain safety programs. Projects associated with the Proposed Action would not pose a safety risk to base personnel or activities at the base.

The proposed dam spillways and levelers would enable 9 RW to meet future mission objectives at the base and conduct or meet mission requirements in a safe operating environment. Specifically, eliminating ponding along Reeds Creek would reduce flight risks caused by increased bird activity near the flight line.

This would enable Beale AFB to improve flight safety and meet the goals laid forth in the BASH OPLAN.

#### **4.5.2 Alternative Action – Beaver Dam Removal**

Short-term, minor direct adverse effects would be expected from the Alternative Action. Implementation of the Alternative Action would slightly increase the short-term risk associated with construction contractors performing work at Beale AFB during the normal workday because the level of such activity would increase. Contractors would be required to establish and maintain safety programs. Projects associated with the Alternative Action would not pose a safety risk to base personnel or activities at the base, with the exception of a potential increase in flood risk of Reeds Creek (Versar 2012).

Full dam removal should enable 9 RW to meet future mission objectives at the base and conduct or meet mission requirements in a safe operating environment. Specifically, eliminating ponding along Reeds Creek would reduce flight risks caused by increased bird activity near the flight line. This would enable Beale AFB to improve flight safety and meet the goals laid forth in the BASH OPLAN.

#### **4.5.3 No Action Alternative**

Under the No Action Alternative, there would be no change in or effects on construction worker safety. There would continue to be significant risk to pilot safety due to increased bird activity near the flight line.

### **5.0 CUMULATIVE AND ADVERSE IMPACTS**

Cumulative impacts on environmental resources result from incremental effects of the Proposed Action, when combined with other past, present, and reasonably foreseeable future projects in the area. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (Federal, state, and local) or individuals. Informed decision-making is served by consideration of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

During the timeframe of the Proposed Action, no other proposed actions are scheduled to take place near the proposed project site. Therefore, no significant impacts on the environment would be anticipated from the proposed action.

#### **5.1 Unavoidable Adverse Impacts**

Unavoidable adverse impacts would result from implementation of the Proposed Action. None of these impacts would be significant.

**Biological Resources.** The Proposed Action would result in minimal loss of vegetation and wildlife habitat. Because implementation of the Proposed Action would result in temporary or very minor effects on other resources on Beale AFB, the Proposed Action would not contribute to a substantial cumulative effect on other biological resources.

**Energy.** The use of nonrenewable resources is an unavoidable occurrence, although not considered significant. The Proposed Action would require the use of fossil fuels, a nonrenewable natural resource. Energy supplies, although relatively small, would be committed to the Proposed or Alternative Actions.

## **6.0 LIST OF PREPARERS**

This EA has been prepared under the direction of Beale AFB. The individuals who contributed to the preparation of this document are listed below.

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## Appendix A

### ***Detailed Description of Proposed Spillway***

The proposed action was developed after the February 28th meeting between 9 RW/SEF and 9 CES/CEAN in which a partial dam removal was discussed as a viable option. The idea of a breach to act as a spillway came about after multiple site visits and discussions with contract hydrologist Larry Kleinecke (Versar) and contract environmental engineer Andy Gruel (Ayuda, Inc.). From their professional perspectives, this is the best way to decrease ponding during peak water events while maintaining control of the water flow so as to avoid flooding. Larry Kleinecke strongly advises against removing the dam altogether and suggests it could lead to flooding of North Beale Road and possible property damage (included in his monthly reports). From a biological standpoint, the spillway is our best option to eliminate ponding while maintaining a consistent water flow to support habitat for the federally threatened giant garter snake. Additionally, a dam breach would not require gravel road construction and eliminates adjacent wetland impact, whereas a full dam removal would have associated mitigation costs.

The placement of the proposed spillway was determined during an on-site meeting between Larry Kleinecke, Andy Gruel, Beale staff biologist Chuck Carroll, and contract biologist Kylene Lang (Auxilio Management). All parties agreed the best location for a dam breach is adjacent to the leveler site (the leveler is within the actual stream channel), approximately 15' east of the leveler based on the following rationale presented to the team by Larry Kleinecke:

1) The location selected for the spillway is the deepest part of the dam. By taking out about three feet, we will effectively remove the entire section of dam, to the level of the pond bottom at the deepest point (excepting the stream channel). The eastern portion of the ponded area is shallower by a foot or two, than the location proposed for the spillway.

The following observations were made in April 2012 (Kleinecke) using a calibrated rod and are intended to help with determinations of potential spillway locations:

- The leveler channel is approximately two feet deep, at a location four feet north of the dam.
- Approximately five feet west of the leveler channel, the pond is one foot deep north of the dam.
- Further west of the leveler channel, the pond is dry.
- East of the leveler channel, at the proposed spillway, the pond is two feet deep.

2) Removing the dam in the shallow areas is expected to be unnecessary as the drainage through the deep spillway will be able to handle approximately 7,500 cubic feet per minute (CFM) of flow. This calculation is based on a flow measurement reported in the March 2012 monitoring report of 500 CFM through the two-foot wide by two-foot deep breach. The spillway would easily allow 15 times as much water through (based on the width), and probably more. The ponded area can retain about 150,000 cubic feet of water. The spillway would be able to drain the contents of the ponded area in about 20 minutes, assuming the water did not back up in the downstream channels.

3) The proposed spillway will also drain into an existing channel, as is necessary for Giant Garter Snake (GGS) habitat. GGS live in riparian areas next to stream channels and are driven out by flooding. It is therefore important to use existing channels as much as possible.

**Appendix B**  
***Regulatory Coordination***



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825-1846



In Reply Refer To:  
81420-2011-I-0776-1

NOV 21 2011

Mr. Gregory S. Capra  
Deputy Base Civil Engineer  
9 CES/CD  
6601 B Street  
Beale AFB, California 95903-1708

Subject: Informal Consultation on the Proposed Reeds Creek Restoration Plan, Yuba County, California

Dear Mr. Capra:

This is in response to your letter dated August 4, 2011, requesting the U.S. Fish and Wildlife Service's (Service) concurrence with your determination that the Proposed Reeds Creek Restoration Plan (proposed project), Yuba County, California, is not likely to adversely affect federally listed species. Your request was received in our office on August 8, 2011. At issue are the possible effects of the proposed project on the federally listed as threatened giant garter snake (*Thamnophis gigas*) (snake) and vernal pool fairy shrimp (*Branchinecta lynchi*) and the endangered vernal pool tadpole shrimp (*Lepidurus packardii*). The vernal pool fairy shrimp and vernal pool tadpole shrimp are collectively referred to as the vernal pool crustaceans. This response is provided pursuant to section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

This response is based on the Service's review of: (1) your August 4, 2011, letter requesting our concurrence; (2) the July, 2011, *Reeds Creek Restoration at Beale Air Force Base, California*, prepared by Beale Air Force Base (Beale AFB); (3) the October 14, 2010, site visit including representatives of Beale AFB and the Service; and (4) other information available to the Service.

### Project Description

Beale AFB is home to an active runway and flightline, and the base Flight Safety Office requires that the base follow a Bird Aircraft Strike Hazard (BASH) plan. The BASH plan is intended to minimize the threat of bird strikes, which pose a threat to human life and property. A key component of the BASH plan is to minimize the amount of bird habitat near the flightline.

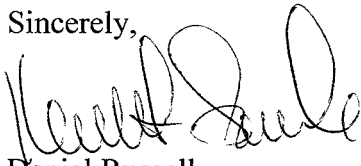
Reeds Creek (Creek) runs across the north end of Beale AFB, and is located approximately 1.2 miles from the runway. Historically, the Creek was reduced to very minimal flows between August and October each year, but more recently a portion of the Creek has been dammed by

- Any sighting of a federally listed species will be immediately reported to the Service-approved biologist, project work will cease, and the Sacramento Fish and Wildlife Office will be contacted immediately at (916) 414-6600.
- All project work will occur during the dry season (approximately June 1- November 15). If a precipitation event occurs during project construction, work will cease until the ground is dry.
- Off-road travel by construction vehicles and equipment will be prohibited outside of the designated work and staging areas.
- All construction vehicles and equipment will be serviced and refueled only in designated paved service areas.
- Erosion control Best Management Practices, in accordance with the Beale AFB Storm Water Pollution Prevention Plan, will be implemented as needed and may include: installation of silt fencing and straw wattles, the use of tackifiers, mulching, and limiting work to the dry season.
- All disturbed areas will be recontoured to original site conditions. Disturbed areas will not be re-seeded, because this could attract birds and the project is in close proximity to the flightline.
- Dust control measures, including the use of a water truck, will be utilized as necessary. No water will be sprayed within 50 feet of any vernal pool crustacean habitat.

After reviewing the information provided, the Service concurs with your determination that the proposed project, as described, is not likely to adversely affect the snake or the vernal pool crustaceans. The conservation measures proposed sufficiently reduce the likelihood of an adverse effect to these species. This concurrence is provided specific to this action area, and for the proposed project action only as described within your request. Any change in the proposed project, as described, may require additional consultation with the Service.

If you have any questions regarding this response, please contact Ben Watson, Staff Biologist, or Kellie Berry, Chief, Sacramento Valley Division at (916) 414-6645.

Sincerely,

  
Daniel Russell  
Deputy Assistant Field Supervisor

## Lang, Kylene R CTR USAF ACC 9 CES/CEAN

---

**From:** Ben\_Watson@fws.gov  
**Sent:** Wednesday, April 25, 2012 1:39 PM  
**To:** Christopherson, Kirsten E Civ USAF ACC 9 CES/CEAN  
**Cc:** Kellie\_Berry@fws.gov  
**Subject:** Re: Reed's Creek Restoration - Additional Minor Modifications

Kirsten,

The proposed modifications to this project, while larger in scope than what was described in the previous BA for this project, should not make the project any more likely to adversely affect the snake. In essence, additional breaches are necessary to drain the beaver pond. Since the main factor in our concurrence (81420-2011-I-0776-1) with your previous NLAA determination was the fact that we do not think it is likely that snakes are currently using this portion of Reed's Creek as habitat, and since Beale has proposed to use the same conservation measures as outlined in your BA and our concurrence letter, your project modifications do not change this project in a way that should require additional consultation with the Service.

Thanks for providing this information. Please keep me posted should anything come up during implementation of the additional breaches.

thanks

Ben Watson  
Fish and Wildlife Biologist  
Endangered Species Program  
US Fish & Wildlife Service  
2800 Cottage Way, Room W-2605  
Sacramento, CA 95825  
916-414-6628

"Christopherson, Kirsten E Civ USAF ACC 9 CES/CEAN" <[Kirsten.Christopherson@beale.af.mil](mailto:Kirsten.Christopherson@beale.af.mil)>

04/25/2012 12:24 PM To

"'Ben\_Watson@fws.gov'" <[Ben\\_Watson@fws.gov](mailto:Ben_Watson@fws.gov)> cc Subject Reed's Creek Restoration - Additional Minor Modifications

Ben,

Beale AFB installed 1 Clemson pond leveler into a beaver dam in Reed's Creek in before the rainy season began in 2011. The USFWS concurred that this action was not likely to adversely affect listed species (giant garter snake and vernal pool species) (Attachment 1, 21 Nov 2011 letter).

After monitoring the leveler throughout the rainy season, we have determined that there are additional blockages in the stream channel that require additional levelers and small breaches (to serve as spillways during large storm events) upstream and downstream of the large beaver dam. Modifications downstream have been identified (Attachment 2), but the specific locations of possible minor upstream modifications are still being investigated.

These modifications will help us meet our goal of a slow, steady stream flow in Reed's Creek to meet both giant garter snake habitat requirements and reduce aircraft flight hazards. We propose to make these minor modifications in summer/fall 2012 or 2013 (depending on timing of funding and Clean Water Act permits). During installation of these additional levelers and breaches, we intend to comply with all of the same Conservation Measures as in your previous concurrence letter (Attachment 1).

Does this additional work fall within the same parameters of your previous concurrence?

Thank you,  
Kirsten Christopherson, M.S.  
Certified Wildlife Biologist®  
Chief, Environmental Section  
6601 B Street  
Beale Air Force Base, CA 95903  
530-634-2643  
[kirsten.christopherson@us.af.mil](mailto:kirsten.christopherson@us.af.mil)

[attachment "Attachment 1 - 2011-I-0776-1\_Reeds\_Creek\_Restoration.pdf" deleted by Ben Watson/R8/FWS/DOI] [attachment "Attachment 2 - Downstream Modifications\_compressed.jpg" deleted by Ben Watson/R8/FWS/DOI]



**DEPARTMENT OF THE AIR FORCE**  
**HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)**  
**BEALE AIR FORCE BASE, CALIFORNIA**

MEMORANDUM FOR U.S. FISH AND WILDLIFE SERVICE

ATTN: MS. KELLIE BERRY  
2800 Cottage Way, Room W2605  
Sacramento, CA 95825-1846

FROM: 9 CES/CD  
6601 B Street  
Beale AFB, CA 95903-1708

SUBJECT: Informal Consultation – Reeds Creek Restoration, Beale AFB

1. The intent of this letter is to get written concurrence from the U.S. Fish and Wildlife Service that the Reeds Creek Restoration for Beale AFB, California are not likely to adversely affect species listed under the federal Endangered Species Act. We have prepared a package summarizing the details of the projects (Attachment).
2. We do not believe that this project will result in impacts to the giant garter snake (*Thamnophis gigas*), vernal pool tadpole shrimp (*Lepidurus packardii*), vernal pool fairy shrimp (*Branchinecta lynchi*), or valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). Furthermore, we do not believe that this project is likely to adversely affect other federally-listed species that occur in the general region of Beale AFB.
3. Please review the enclosed documents and contact Kirsten Christopherson at (530) 634-2643 or [kirsten.christopherson@beale.af.mil](mailto:kirsten.christopherson@beale.af.mil) if you need additional information.

GREGORY S. CAPRA, P.E., LEED AP  
Deputy Base Civil Engineer

Attachment:  
Informal Consultation – Reeds Creek Restoration

cc:  
9 RW/SE



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO  
CORPS OF ENGINEERS  
1325 J STREET  
SACRAMENTO CA 95814-2922

CESPK-RD-N (1145b)

18 July 2012

MEMORANDUM FOR Commander, Beale AFB, ATTN: 9 CES/(Mr. Gregory Capra), 6451 B Street, Beale AFB, California 95903

SUBJECT: Reeds Creek Restoration (SPK-2011-00899)

1. This letter concerns your May 31, 2012, request for a Department of the Army Nationwide Permit (NWP) for the Reeds Creek Restoration project. The proposed installation of nine pond-leveling devices into Reeds Creek is located in Sections 7, 18, 19, and 24, Township 15 North, Ranges 4 and 5 East, Mount Diablo Meridian, Latitude 39.1478580°, Longitude -121.4649813°, Beale AFB, Yuba County, California.
2. Based on the information you provided, the proposed activity, resulting in the discharge of 14.4 cubic yards of fill material into 0.0062 acre of Reeds Creek is authorized by NWP 18. However, until Section 401 Water Quality Certification for the activity has been issued or waived, our authorization is denied without prejudice. Once you have provided us evidence of water quality certification, the activity is authorized and the work may proceed subject to the conditions of certification and the NWP. Your work must comply with the general terms and conditions listed on the enclosed NWP information sheets and regional conditions (encl 1).
3. You must sign the enclosed Compliance Certification (encl 2) and return it to this office within 30 days after completion of the authorized work.
4. This verification is valid for two years from the date of this letter or until the NWP is modified, reissued, or revoked, whichever comes first. Failure to comply with the General and Regional Conditions of this NWP, or the project-specific Special Conditions of this authorization, may result in the suspension or revocation of your authorization.
5. We would appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey on our website under *Customer Service Survey*.
6. Please refer to identification number SPK-2011-00899 in any correspondence concerning this project. If you have any questions, please contact Mr. William Ness at our California North Branch Office, 1325 J Street, Room 1350, Sacramento, California 95814-2922, email [William.W.Ness@usace.army.mil](mailto:William.W.Ness@usace.army.mil), or telephone 916-557-5268. For more information regarding our program, please visit our website at [www.spk.usace.army.mil/Missions/Regulatory.aspx](http://www.spk.usace.army.mil/Missions/Regulatory.aspx).

FOR THE COMMANDER:

WILLIAM W. NESS  
Senior Project Manager  
California North Branch

2 Encls

1. NWP 18 & Regional Conditions
2. Compliance Certification

Copy Furnished without enclosures:

Ms. Kristen Christopherson, Natural Resources Management, 6601 B Street, Beale AFB, CA 95903



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)  
BEALE AIR FORCE BASE, CALIFORNIA

31 MAY 2012

MEMORANDUM FOR CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

ATTN: ELIZABETH LEE

Central Valley Region, 401 Certification Unit

11020 Sun Center Drive #200

Ranch Cordova, CA 95670-6114

FROM: 9 CES/CD

6451 B Street

Beale AFB, CA 95903-1708

SUBJECT: Reeds Creek Restoration - Beale AFB, California

1. The intent of this letter is to submit a Section 401 Water Quality Certification Application for the Reeds Creek Restoration project (Attachment) at Beale AFB. The project will include the installation of several pond-leveling devices into existing beaver dams, which will allow for water levels to be adjusted to restore a slow flowing stream, rather than ponding. The proposed work would impact less than 0.01 acres of waters of the U.S.
2. In 1999, the U.S. District Court for the Northern District of California found that fees arising from Section 13260 of the California Water Code cannot be charged against federal facilities engaged in dredging projects that fall under a U.S. Army Corps of Engineers (USACE) Section 404 Permit. We have submitted a preconstruction notification to the USACE to work under nationwide permit 27. Therefore, Beale AFB is exempt from the Section 401 processing fee.
3. As a federal agency, the U.S. Air Force is not required to complete analysis under the California Environmental Quality Act (CEQA), reference CEQA Guideline 15379. Federal facilities are required to complete environmental analysis for discretionary projects under the National Environmental Policy Act; therefore, Beale AFB has prepared a CEQA-compliant environmental assessment for this project.
4. As a federal agency, Beale AFB is not required to obtain a streambed alteration agreement; however, we have informally consulted with the U.S. Fish and Wildlife Service on the project. They have determined that the project is not likely to adversely affect federally listed species.
5. My point of contact is Kirsten Christopherson at (530) 634-2643 or [kirsten.christopherson@beale.af.mil](mailto:kirsten.christopherson@beale.af.mil).

GREGORY S. CAPRA, P.E., LEED AP  
Deputy Base Civil Engineer

Attachment:

Section 401 Water Quality Certification Application

cc:

9 RW/SE

*One Team... One Fight*

## **Appendix C**

### ***Proof of Public Notice/Public Involvement***

**(530) 749-4700**

Account: 25440

# INVOICE

[illegible]

**Total: \$ 268.20**

07/19/2012 08:33:38  
Merchant ID: 000000000798042  
Terminal ID: 02026822  
825021807888

CREDIT CARD

VISA SALE

CARD #	XXXXXXXXXXXX2134
INVOICE	0002
Batch #:	000539
Approval Code:	001962
Entry Method:	Manual
Approved:	Online
Tax Amount:	\$0.00
Cust Code:	
Card Code: P	

Democrat

On this invoice, call: URSULA (530) 749-4709  
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PAID

JUL 19 2012

## Visa

CJR

SALE AMOUNT	\$268.20
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HARD TO MEASURE LAW'S EFFECTS

# NY marks 1 year of gay marriage

By Meghan Barr and Michael Hill  
Associated Press

NEW YORK – New York became the largest and most influential state to legalize gay marriage one year ago, raising supporters’ hopes that it would boost national momentum and pump money into the state with a flurry of weddings from Manhattan to Niagara Falls.

As the anniversary nears Tuesday, the law’s effects are noticeable if hard to measure.

Thousands of same-sex couples have wed across New York, but it’s unclear just how many, partly because marriage applicants aren’t required to identify themselves by gender. The wedding business is up, but some planners in New York City say it’s not booming.

And while President Barack Obama announced support this year for gay marriage, no state has enacted a law allowing it since New York. And opponents note that North Carolina voters banned it.

California, which is almost double the size of New York, has been tied up in court over the issue since at least 2004 when the mayor of San Francisco ordered city clerks to issue licenses to gay couples and the subsequent popular vote in 2008 to ban same-sex marriages.

One thing is clear: legalizing gay marriage in the cultural, media and business hub of New York City amped up the national spotlight on the issue.

“Do you know I still have people come up to me and congratulate me on my wedding?” said Carol Anastasio, who was



Carol Anastasio, left, and Mimi Brown speak on Friday in their New York home. They are celebrating their one-year anniversary after the state of New York legalized gay marriage last year.

among the first bouquet-waving, teary-eyed newlyweds when New York legalized gay marriage July 24, 2011. News crews swarmed Anastasio and Mimi Brown outside the city clerk’s office in Manhattan.

“I work in a public park so I’m outdoors a lot and people will be walking a dog: ‘I thought that was you! I saw you in the paper! That’s great!’” said Anastasio, a city parks manager. “It’s really amazing how it just continues.”

New York inked its gay marriage law with a nail-biting state Senate vote on the night of June 24, 2011, after weeks of intensive lobbying by Democratic Gov. Andrew Cuomo. Exactly one month later, New York

became the sixth and largest state to allow gay weddings – more than doubling the number of same-sex couples eligible to wed.

The new law was ushered in with a whirlwind of weddings that started in the minutes after midnight from Niagara Falls to New York City.

“When it became a reality in New York, that’s when I think most Americans started to realize that this is something we’ll all be dealing with and started thinking about it seriously,” said Marty Rouse, national field director for the Human Rights Campaign, a gay advocacy group. “The momentum from New York can’t be underesti-

mated. After Massachusetts becoming the first state, nothing has had that influence.”

Rouse said that because of New York’s size and influence, people around the country had to think seriously about what legalization meant for them and their families.

Even as Obama announced his support in May, North Carolina voters that week approved a constitutional amendment defining marriage solely as a union between a man and a woman. State lawmakers in Maryland and Washington passed same-sex marriage laws, but voters will have a final say in November over whether the measures will take effect. The

issue is also on the ballot this fall in Maine and Minnesota, where opponents are ready to spend up to \$20 million to keep the definition of marriage as between a man and a woman.

Opponents note that despite legislative victories in states like New York, voters have rejected gay marriage in all 32 states where it has been on the ballot.

“As it passes, people begin to realize that it’s more than two people standing at the altar, it literally alters all of society,” said Tony Perkins, president of the Family Research Council, a prominent social conservative group.

Ahead of its passage, an analysis by the New York Senate’s independent Democratic conference predicted there would be up to 66,500 same-sex weddings in the first three years that would generate \$311 million in increased revenue and economic activity.

A year out, the exact number of gay couples wed statewide is unknown. New York City, where most gay people are wed in the state, did not immediately have any numbers. At least 3,424 same-sex marriages occurred outside of the city by mid-July, according to state Department of Health figures.

People involved in New York City’s wedding industry report only a mild surge in business. The prevailing view among vendors is that many gay couples already had celebrated their unions before the legislation was passed. Now all they really want is the legal paperwork, not a four-tier cake.

BATMAN MASK FOUND

## Movie massacre suspect mum

By Nicholas Riccardi and Gillian Flaccus  
Associated Press

AURORA, Colo. – University of Colorado officials were looking Sunday into whether James Holmes used his position in a graduate program to collect hazardous materials, but school officials weren’t saying whether they knew the suspect in a movie theater massacre was anything more than a hard-working student.

Law enforcement officials also revealed that Holmes, 24, has not been cooperating with them and that it could take months to learn what prompted the attack early Friday on a packed theater of moviegoers watching the premiere of the latest Batman movie. The assault killed 12 and left 58 wounded.

Investigators found a Batman mask inside Holmes’ apartment after they finished clearing the home of booby traps and ammunition, a law enforcement official close to the investigation said Sunday on condition of anonymity because he was not authorized to speak to the news media.

Meanwhile, President Barack Obama flew to Colorado for a few hours to comfort residents in a state that’s critical to the November election. He began his visit with the



Aaron Ontiveroz/The Denver Post  
A man writes on a cross at a memorial for the victims of Friday’s shooting rampage on Sunday at a movie theater in Aurora, Colo.

family members of the victims at the University of Colorado Hospital, which treated 23 of the people injured; 10 remain there, seven hurt critically. The hospital is a short drive from the site of the shooting.

After meeting with the families, he said that he was there “not as president but as a father and a husband.”

He said that “we can all understand what it would be to have someone taken from us in this fashion.”

Holmes was being held in solitary confinement at a Denver-area county detention facility, Aurora Police Chief Dan Oates said, and is “lawyered up.”

“He’s not talking to us,” the chief said. He is sched-

uled for an initial hearing Monday at 9:30 a.m. MDT, and has been assigned a public defender.

Police have said that Holmes began buying guns at Denver-area stores nearly two months before Friday’s shooting and that he received at least 50 packages in four months at his home and at school. Also on Sunday, a gun range owner east of Denver said he recently rejected a membership application from Holmes in part because of a bizarre voice mail greeting on Holmes’ phone.

While the University of Colorado disclosed that it was cooperating with police in the case, that disclosure was one of the few the university has made three days after the mas-

sacre. It remained unclear whether Holmes’ professors and other students at his 35-student Ph.D. program noticed anything unusual about his behavior.

His reasons for quitting the program in June, just a year into the five- to seven-year program, also remained a mystery.

Holmes recently took an intense, three-part oral exam that marks the end of the first year. Those who do well continue with their studies and shift to full-time research, while those who don’t do well meet with advisers and discuss their options, including retaking the exam. University officials would not say if he passed, citing privacy concerns.

## Search for Iowa girls will expand

Associated Press

Law enforcement officials will likely expand their search for two missing Iowa cousins now that the girls’ disappearance is considered an abduction case, experts said.

But experts said it’s hard to tell exactly what’s going on because officials probably aren’t disclosing everything they know, including why they are confident that 10-year-old Lyric Cook-Morrissey and 8-year-old Elizabeth Collins are alive.

FBI spokeswoman Sandy Breault said Sunday that investigators want to talk to anyone who was at Meyers Lake in the northeast Iowa town of Evansdale before 3 p.m. July 13. That’s where the girls’ bicycles were found.

Breault’s plea for help fits with what David Finkelhor, director of the Crimes Against Children Research Center, expected would happen after the case was reclassified as an abduction. He said investigators now may be more dependent on tips from the public.

“They’ve got to cast a much wider net. They could be miles from that spot there,” said Finkelhor, who is based at the University of New Hampshire.

Finkelhor said if the girls were abducted by a stranger, the statistics are grim – his research shows that 40-50 percent of children in that situation aren’t recovered alive. But, he said, abductions by strangers are so rare that it’s difficult to predict what might happen.

Several “persons of interest” have been interviewed in the case, and numerous tips from the public have come into investigators. Breault also said that most of the girls’ family members have been cooperating with investigators.

**PUBLIC NOTICE**  
**Notice of Availability**  
**DRAFT**

**ENVIRONMENTAL ASSESSMENT (EA)**  
**FOR REEDS CREEK RESTORATION**  
**AT BEALE AIR FORCE BASE,**  
**CALIFORNIA**

The U.S. Air Force at Beale Air Force Base (AFB), California, proposes to restore Reeds Creek to a naturally meandering stream through the creation of beaver dam breaches to act as spillways and the installation of pond leveling devices. The objective of the EA is to analyze and disclose any potential environmental impacts. In accordance with 32 CFR 989, the Air Force is required to prepare an EA and provide documentation for public review. A draft EA has been prepared and is available for review.

The review period for this EA is thirty (30) days. The document will be available for review at the Beale AFB Environmental Office for 30 days from the date of this publication. Copies can also be obtained by calling (530) 634-2593 or by mailing a request to 9 CES/CEAO, 6451 B Street, Beale AFB, CA 95903, Attn: Ms. Sheri Rolfsness.

### Please change/correct my listing.

We do our best to make the Yuba-Sutter Medical Directory as accurate as possible. If you have corrections to make, please let us know. (Space limitations force us to include only medical listings for Yuba County, Sutter County, Colusa County and Biggs/Gridley.) There is no cost to be listed in the directory, but ONLY health-related businesses and resources will be included.

**The deadline for changes is Tuesday, July 24th, 2012.**

Please type or print as clearly as possible.

Name (and degree where applicable) \_\_\_\_\_

Medical Group or Company \_\_\_\_\_

Address \_\_\_\_\_

Telephone \_\_\_\_\_ Fax \_\_\_\_\_

To view your current listing:  
ad.com►Features►Special Editions►Medical Directory Spring 2012

**Please fax this form to 749-8394**

**Appendix D**  
***2011 FONPA***

## **FINDING OF NO PRACTICABLE ALTERNATIVE**

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### **1.0 PROPOSED ACTION**

The Air Force proposes two repair projects on Beale AFB that would occur in a floodplain: (1) An emergency permanent repair to a damaged sewer line would replace a section of sewer line that crosses Dry Creek, either in the same location as the existing line that failed, or at an alternative location downstream where it would be supported by an existing bridge that crosses Dry Creek. (2) Restoration of Reeds Creek to restore the drainage flow that is currently restricted by a beaver dam. The work would include installing 5-10 pond levelers along the beaver dam to drain a ponded area that attracts birds and poses a Bird Aircraft Strike Hazard (BASH) problem.

### **2.0 PURPOSE AND NEED FOR PROPOSED ACTION**

**Emergency Repair to Damaged Sewer Line:** The sewer main failed during the last rainy season, releasing sewage into Dry Creek, polluting the creek and flowing off base for an unknown period of time. A Notice of Violation is expected from the CA Water Board. A temporary repair has been installed, but has a high probability of failing. A permanent repair is required to prevent another sewage release, and potential enforcement actions and negative publicity that could result if the problem is not corrected and recurs this fall.

**Reeds Creek Restoration:** A portion of Reeds Creek has been dammed up by beavers, resulting in a large ponded area along the creek. This has created an attractive habitat for many species of birds leading to a significant BASH hazard.

### **3.0 LOCATION OF THE PROPOSED ACTION**

**Emergency Repair to Damaged Sewer Line:** The proposed location would be at Dry Creek, where an existing sewer main crosses the creek to transport sewage from the military family housing area on the east side of Beale AFB to the waste water treatment plant on the west side of Beale AFB. The existing sewer line is within the 100-year floodplain and there is no way to get sewage from the housing area to the waste water treatment plant without crossing the floodplain within our time constraints and without a major project to reroute the sewer collection system. Within the project area there are streams, shallow wetlands, swales, and Dry Creek that meet the criteria for Jurisdictional Waters of the United States. No construction activities or equipment will be installed in the streams, shallow wetlands, swales, or Dry Creek.

**Reeds Creek Restoration:** The proposed location would be on the east side of the Beale AFB flight line, along Reeds Creek, where a beaver dam restricts natural water flow. The beaver dam is within the 100-year floodplain of Reeds Creek, and there is no way to modify the dam to allow water to flow without working within the floodplain. Activities associated with the project would impact 0.0062 acres of jurisdictional waters of the U.S., which will require Clean Water Act Section 401 and 404 permits (approval process underway). Within the project area there are roadside ditches, swales, vernal pools, wetlands, and Reeds Creek that meet the criteria for Jurisdictional Waters of the United States. No construction activities or equipment will be installed in the roadside ditches, swales or vernal pools.

## 4.0 ALTERNATIVES

### Emergency Repair to Damaged Sewer Line:

**Alternative 1:** Install a new section of sewer line from an existing manhole where the sewer line break occurred, along the east side of Dry Creek, to an existing pedestrian bridge that crosses Dry Creek. Attach the sewer line to this bridge to cross the creek, and connect to the existing sewer main at an existing manhole on the west side of the creek. Cap and abandon in place the sewer main that would be by-passed by the new sewer line. Provide gravel to unpaved paths as needed to allow equipment access to manholes. Removal of old pier foundations within the creek would follow at some time in the future.

**Alternative 2:** Repair the sewer line exactly where it currently exists, using a new support structure outside the banks of Dry Creek. Provide gravel to unpaved paths as needed to allow equipment access to manholes. Removal and/or replacement of old pier foundations within the creek could follow at some time in the future.

**No Action Alternative:** Under the No-Action Alternative, the repair would not occur and the existing temporary repair would remain in place at the current creek crossing. The existing temporary repair has a high probability of failing under heavy rain and high water flow. Sewer line failure would release raw sewage to Dry Creek, which would flow off base. The CA State Water Resources Control Board would issue a Notice of Violation and a Clean up and Abatement Order for the second time this year. Negative publicity might result due to the release of sewage off base, and degradation of suitable habitat for two threatened or endangered species of fish downstream from the repair site.

### Reeds Creek Restoration:

**Alternatives:** Remove the beaver dam, partially or completely. An EA is underway to assess these alternatives, but these alternatives involve potential impacts to endangered species habitat in nearby vernal pools and potentially suitable habitat for giant garter snake. These alternatives would take additional time, money, and regulatory consultations, and could not be completed before the wet season. If the ongoing EA results in a FONSI/FONPA, one of these alternatives may be implemented at a future date.

**No-Action Alternative.** Under the No-Action Alternative, no repair or restoration to Reeds Creek flow would occur. The current condition of restricted drainage, ponded water, increased BASH hazard, and degraded habitat for giant garter snake would continue unchanged.

## 5.0 CONCLUSION

The proposed actions and the available alternative actions all require work to occur within 100-year floodplains. The proposed action and alternatives at Reeds Creek also require disturbance of wetlands. The only alternatives that do not involve any disturbance to wetlands or floodplains are the no-action alternatives, which would result in unacceptable impacts to the environment and to flight safety. There are no practicable alternatives to construction in a floodplain to carry out the proposed actions.

## 6.0 STATEMENT OF NO PRACTICABLE ALTERNATIVE

The proposed actions would have no significant independent or cumulative effects on the human or natural environment and based on 32 CFR 989 Appendix B, these projects qualify for categorical exclusions and require no further environmental analysis (see attached AF Form 813s). Reasonable alternatives were considered, but no other alternatives to the Proposed Actions meet the safety or operational requirements of the 9th Reconnaissance Wing (9 RW). Pursuant to Executive Orders 11988 Floodplains Management and 11990 Wetlands Management and the authority delegated by Secretary of the Air Force Order 791.1, and taking the above information into account, I find that there is no practicable alternative to these actions and that the Proposed Actions include all practicable measures to minimize harm to the wetland floodplain environments.



GARY D. CHESLEY, Colonel, USAF  
Deputy Director, Installations and Mission Support

26 OCT 11  
Date